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OPERATION AND MAINTENANCE REPORT
FIRST QUARTER 2016

DELATTE METALS SUPERFUND SITE
AGENCY INTEREST NO. 2328

DATE SUBMITTED:
APRIL 30, 2016

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PREPARED FOR

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APRIL 30, 2016

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1.0 INTRODUCTION AND BACKGROUND

SEMS, Inc. (SEMS) was selected by the Louisiana Department of Environmental Quality (LDEQ) for the continued Operations and Maintenance (O&M) of the Delatte Metals Superfund Site in Tangipahoa Parish, Ponchatoula, Louisiana. The Delatte Metals Superfund Site is currently under periodic O&M, including groundwater and surface water sampling to determine if constituents of concern (COCs) remediated at the site are in a declining condition and to ensure that COCs are not migrating horizontally past the permeable reactive barrier (PRB) or vertically into lower water bearing zones. This report summarizes SEMS' performance of site activities associated with the onsite and offsite water supply wells during the current quarter. A map showing the locations of the onsite and offsite water supply wells is presented as **Figure 1**. A brief status and history of the site are provided below.

The physical location of the site is approximately 5.5 miles south-southeast of Hammond, Louisiana, 1.5 miles southeast of Ponchatoula, Louisiana, and adjacent to the new Delatte Recycling, LLC (19113 Weinberger Road, Ponchatoula, Louisiana). The site lies to the north of Weinberger Road, in a rural area with numerous residences within a one-mile radius of the site. The latitude and longitude for the site are 30°25'16"N and 90°24'39"W, respectively. The site is bounded to the south by Weinberger Road followed by residences, to the north and east by drainage ditches and residences, and to the west by Selser's Creek and residences.

According to previous reports, the 19-acre Delatte Metals Superfund Site includes the Delatte Metals, Inc. (DMI) facility and the abandoned North Ponchatoula Battery facility. DMI began business as the Delatte and Fuscia Battery Company in the early 1960's and continued as Delatte Metals, Inc. from the early 1980's until closing in 1993. Its operations included the dismantling of lead-acid batteries and smelting of recovered lead plates into ingots. The Ponchatoula Battery Company moved its operations to a site adjacent to the Delatte and Fuscia Battery Company between 1972 and 1978 and performed identical lead salvage operations and generated the same types of wastes until closing in 1981.

During LDEQ and EPA investigations, discharge from the facilities showed a pH range from 0.55 to 2 standard units (s.u.). Analytical samples from on-site soil and groundwater samples indicated the presence of heavy metals including lead, arsenic, and cadmium. An observed release of lead and cadmium to Selser's Creek was documented by the analytical data from the sediment samples collected at three probable points of entry.

Remedial action (RA) operations were implemented at the site between November of 2002 and September of 2003. During the RA, the principle threat wastes were excavated, immobilized, and transported off-site for disposal. A permeable reactive barrier wall (PRB) was installed to neutralize the acidity of the shallow water-bearing zone and limit the migration of dissolved metals. Following the RA, an O&M Program was initiated to confirm the effectiveness of the selected remedy. The O&M Program initially included groundwater sampling of 31 monitor and water supply wells to verify the metal concentrations and pH in the site groundwater. The O&M Program was modified in September 2013 to include sampling of 44 monitor and water supply wells and five (5) surface water sample locations. This report summarizes the current quarterly site activities pertaining to the onsite and offsite water supply wells only. Data collected by SEMS from the 39 monitor wells and five (5) surface water sample locations included in the O&M Program is reported to the LDEQ semi-annually and is not included in this quarterly report.

Three distinct and local water bearing zones (WBZ) were identified at the site during previous investigations. The three WBZ are located at the site from ground surface to approximately 100 feet below ground surface (ft.-bgs).

- The First WBZ is generally found between 5 and 15 ft.-bgs. This zone is semi-confined and is overlain by sandy/silty clay across the northern section of the site. During the Remedial Investigation (RI), a clay unit was encountered underneath this First WBZ. Currently 22 monitor wells are screened in this zone. This WBZ was previously classified according to RECAP as a Class 3B aquifer.

- The Second WBZ encountered at the site generally consists of intermittent layers of gray, tan, and orange clayey silt. At various locations, this WBZ is typically encountered

between 15 and 40 ft.-bgs. The Second WBZ is considered to be confined and relatively continuous across the site. Currently 13 monitor wells are screened in this zone. This WBZ was previously classified according to RECAP as a Class 2C aquifer.

- The Third WBZ encountered at the site consists of light brown to gray silty sand and sand. During the RI, this Third WBZ was encountered between 58 and 62 ft.-bgs, extending to the maximum depth of the site borings (100 ft.-bgs). The Third WBZ is considered to be confined and continuous across the site. There are currently four monitor wells screened in this zone. This WBZ was previously classified according to RECAP as a Class 1B aquifer.

Underneath the three local WBZs identified at the site are three regional aquifers: The Shallow Aquifer (also known as the Upland Terrace Aquifer), the Ponchatoula Aquifer (which is subdivided into two units: the Upper and Lower Ponchatoula Aquifers), and the Tchefuncte Aquifer. The five (5) onsite and offsite water supply wells are screened below the Third WBZ and a summary of the water supply well characteristics is provided as Table 1.

2.0 CHRONOLOGY OF EVENTS

A chronology of events is as follows:

- January 29, 2016 – SEMS submitted the Operation and Maintenance Report – Fourth Quarter 2015 to the LDEQ for approval.
- January 29, 2016 – SEMS submitted the Operation and Maintenance Report – Second Semi-annual 2015 to the LDEQ for approval.
- February 29, 2016 – SEMS mobilized to the site and performed first quarter 2016 O&M activities.

3.0 OPERATION AND MAINTENANCE ACTIVITIES

Operation and maintenance activities include well inspection, PRB inspection, review of institutional controls, groundwater monitoring, and surface water monitoring. The frequency of

sample collection and reporting varies at each sample location. Monitor wells screened in the First and Second WBZ are sampled and reported on a semi-annual basis. Monitor wells screened in the Third WBZ are sampled on an annual basis and the results are included in the semi-annual reports. Surface water is sampled and reported on a semi-annual basis. The onsite and offsite water supply wells are sampled and reported on a quarterly basis. Only the data concerning the onsite and offsite water supply wells is included in this quarterly report. The sampling and reporting schedule for each sample location is provided in **Table 2**.

On February 29, 2016, SEMS mobilized to the site and performed operation and maintenance activities, including the quarterly sampling of the five (5) onsite and offsite water supply wells. Inspection of the wells and the PRB and review of the institutional controls were also performed during this period. Details of activities performed at the site are summarized below.

3.1 ACCESS TO WELLS

Each well was cleared as needed to provide access prior to sampling.

3.2 WELL INSPECTION

The water supply wells were inspected during the groundwater sampling event for damage. **Table 1** includes a listing of the water supply wells at the site and **Figure 1** shows the locations of the wells. The Well Inspection Checklist is included with the field data in Attachment A. No deficiencies were noticed during this sampling event.

3.3 PERMEABLE REACTIVE BARRIER (PRB) INSPECTION

The grass cover of the PRB was mowed by the LDEQ Clearing Contractor prior to the previous sampling event. SEMS inspected the condition of the PRB during the current sampling event and noted the following:

- No cracks or erosion are visible in the PRB.

- Very little evidence of subsidence is apparent in the PRB following the placement of fill material in March of 2014.

The condition of the PRB will continue to be monitored quarterly.

3.4 REVIEW OF INSTITUTIONAL CONTROLS

Tangipahoa Parish Clerk of Court deed files 650403, 674853 and 674854 provide institutional controls restricting site reuse to an industrial scenario. SEMS conducted an online review of these records at the Tangipahoa Parish Clerk of Court website (www.tangiclerk.org) to confirm that they are still on file.

3.5 GROUNDWATER MONITORING, SAMPLING, AND ANALYTICAL PROCEDURES

The two (2) onsite and three (3) offsite water supply wells were sampled during the quarterly groundwater sampling event. The locations of the water supply wells are shown on **Figure 1**.

Groundwater was purged from each water supply wells by opening the valve and allowing the water to flow for a period of 20 minutes. After 20 minutes elapsed, a sample was collected for laboratory analysis. All samples were collected in laboratory-supplied, pre-preserved containers and placed in a cooler with ice. Instantaneous water quality parameters were measured in the field and recorded on the field forms. The water quality parameters are summarized on **Table 3**. The samples were transported to Pace Analytical Services (Pace) in St. Rose, Louisiana for analysis. The samples were shipped accompanied by proper chain-of-custody documentation.

Quality Assurance/Quality Control (QA/QC) samples were collected during the quarterly sampling event in accordance with the O&M Manual. A summary of QA/QC samples collected during the current quarter is included in the field data sheets presented in **Attachment A**.

Groundwater samples were analyzed for Total Metals including arsenic, cadmium, lead, manganese, nickel, and zinc via method SW6020 or SW6010. Summaries of groundwater analytical data are provided in **Table 4** and are further discussed in Section 4.0. A copy of the laboratory reports and chain-of-custody documentation are included in **Attachment B**.

The personal protective equipment and other disposable material that contacted the site groundwater are contained in a 55-gallon metal drum and stored onsite at a holding location south of the "North Well" water supply well. Copies of drum disposal manifests for this quarter, if applicable, are included in **Attachment A**.

4.0 ANALYTICAL DATA REVIEW

4.1 CURRENT PERIOD CONSTITUENT CONCENTRATION

Site Cleanup levels for pH and lead are available in the QAPP prepared for the EPA in September 28, 2004. The Site Cleanup level for lead is 0.015 mg/L. The Site Cleanup level for pH is 7.0 standard units. Since a pH of exactly 7.0 s.u. is not practically obtainable, SEMS recommends that the EPA acceptable range for drinking water, 6.5-8.5 s.u., be utilized as a practicable alternative pH compliance standard for the water supply wells. According to the LDEQ, the LDEQ RECAP Screening Standards (SS) should be used for comparison to the other site COCs.

Below is a brief summary of all COCs exceeding the applicable site limiting standards:

The following onsite and offsite water supply wells were outside their EPA acceptable pH range:

- Samples from WW-04, WW-09, and the South Well were above the EPA acceptable pH range of 6.5-8.5 s.u. with a maximum pH reading of 8.89 s.u. at WW-04.

No onsite or offsite water supply wells exhibited arsenic, cadmium, lead, manganese, nickel, or zinc concentrations above RECAP SS or EPA Site Cleanup levels during the current sampling event.

Analytical results for this quarter are summarized in **Table 4**. Concentration Maps prepared for the onsite and offsite water supply wells are presented as **Figures 2** through **8**. Following a review of the water supply well Concentration Maps, all COCs except pH were found to be horizontally delineated to their applicable limiting standard.

4.2 HISTORICAL GROUNDWATER MONITORING TRENDS

A historical summary of the groundwater analytical data from the past eight quarters is presented in **Table 5**. Historical data trend graphs that show pH, arsenic, cadmium, lead, manganese, nickel, and zinc concentrations over time are presented in **Attachment C**. For graphing purposes, the reporting limit was used in place of all non-detected concentrations. The historical data trend graphs were completed in Excel and a linear regression trend line was generated by Excel using the previous eight quarters of data for each COC.

Those onsite and offsite water supply wells exhibiting constituent concentrations above the site cleanup levels or RECAP SS for at least two of the previous eight quarters are reviewed in the trend evaluation. The concentration graphs and linear regression analyses for the water supply wells indicate the following trends:

pH: Above 8.5 s.u. and stable: North Well

Above 8.5 s.u. and increasing: WW-04, WW-09, and South Well

Lead, Arsenic, Manganese, Nickel, Cadmium, and Zinc: No exceedances observed for any two of the previous eight quarters sampled.

Offsite Water Supply Well Long-Term Trends

Three offsite water supply wells, WW-04, WW-09 and the (b) (6) Well, have at some time in their history demonstrated pH measurements exceeding site cleanup maximum level of 8.5 s.u.; therefore, a trend evaluation was conducted using the complete historical pH data set for these wells. The available data evaluated for water wells WW-04 and WW-09 range from 2006 to present. The available data evaluated for the (b) (6) Well ranges from 2008 to present. These additional graphs are presented in **Attachment C**.

The trend analysis for water supply well WW-04 shows an overall increasing trend for the historical data since 2006, including the most recent eight quarters. Water well WW-09 shows a decreasing pH trend over the historical data set since 2006 with an increasing trend over the most recent eight quarters. The pH trend noted at the (b) (6) Well has been slightly increasing since 2008, including the most recent eight quarters.

4.3 QUALITY ASSURANCE/QUALITY CONTROL AND UNUSUAL FINDINGS

A summary of QA/QC samples collected during the current quarter is included in the field data sheets presented in Attachment A. QA/QC samples include at least one duplicate for every 10 samples, one matrix spike for every 20 samples, and one matrix spike duplicate for every 20 samples. One duplicate sample, (North Well), was collected during the current quarter. All QA/QC duplicate sample analytical results were reported within a factor of 10 of the original analytical sample results. All data sets were accepted. Full laboratory analytical reports from Pace are included in **Attachment B**. Each laboratory analytical report includes laboratory QA/QC documentation.

The Pace analytical data was reviewed by Environmental Data Professional, LLC (eDATApro), a third party data validator. eDATApro reviewed ten percent of the samples analyzed including the sample WW-04. There were no changes made to this report as a result of the data validation.

No major discrepancies were found in the data validation report, which is included in Attachment D. The Pace Level IV analytical report is attached to this report with a compact disk (CD) in an electronic format as requested by LDEQ.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on evaluation of data presented within this groundwater monitoring report.

- SEMS recommends continuing with quarterly O&M of the onsite and offsite water supply wells.

TABLES

TABLE 1
WATER SUPPLY WELL DATA
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

Well ID	Address	Depth (feet)	Date Installed
WW-04*	39229 Keaghey Road Ponchatoula, LA 70454	Unknown	Unknown
WW-09*	39233 Keaghey Road Ponchatoula. LA70454	60	10/94
North Well	19119 Weinberger Road Ponchatoula. LA 70454	Unknown	Unknown
South Well	19113 Weinberger Road Ponchatoula, LA 70454	Unknown	Unknown
(b) (6) Well**	Keaghey Road Ponchatoula. LA70454	Unknown	Unknown

Notes: Water Well
*Designations for water wells WW-04 and WW-09 were obtained from the Delatte Metals Remedial Investigation Report (Tetra Tech 2000)
**Designation was assigned based on current owner's name.

TABLE 2
SAMPLING AND REPORTING SCHEDULE

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

Sample ID	Sample Collection Frequency	Reporting Frequency	Analyses Required
First Water-Bearing Zone Monitoring Wells			
DW-1	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
DW-2	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
DW-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-1	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-2	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
MW-6	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
PW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-09	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
GSGP-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-6	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-15	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-18	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
GSGP-22	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-01	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-02	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-04	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
NWGS-06	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides
TEPA-P7D	Semi-Annual	Semi-Annual	Total and Dissolved Metals*, Sulfates, Sulfides

Notes: 1) * All monitoring wells will be sampled for total metals. Monitoring wells will be sampled for dissolved metals as needed based upon turbidity readings in the field. All surface water samples will be sampled for both total and dissolved metals.

2) ** Monitoring wells in the 3rd WBZ will be sampled annually and the results will be included in the semi-annual report.

TABLE 2
SAMPLING AND REPORTING SCHEDULE

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

Sample ID	Sample Collection Frequency	Reporting Frequency	Analyses Required
Second Water-Bearing Zone Monitoring Wells			
DW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-A	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-3	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
MW-4	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-01	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BA-09A	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-03	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-17	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-21R	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
BC-25	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
Third-Water-Bearing Zone Monitoring Wells			
BA-03A	Annual	Semi-Annual**	Total and Dissolved Metals*
BA-05A	Annual	Semi-Annual**	Total and Dissolved Metals*
BB-01	Annual	Semi-Annual**	Total and Dissolved Metals*
BA-01A	Annual	Semi-Annual**	Total and Dissolved Metals*
Water Supply Wells			
WW-04	Quarterly	Quarterly	Total Metals
WW-09	Quarterly	Quarterly	Total Metals
North Well	Quarterly	Quarterly	Total Metals
South Well	Quarterly	Quarterly	Total Metals
(b) (6) Well	Quarterly	Quarterly	Total Metals
Surface Water			
CA-41	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CA-51	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CL-05	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
CL-19	Semi-Annual	Semi-Annual	Total and Dissolved Metals*
Bridge	Semi-Annual	Semi-Annual	Total and Dissolved Metals*

Notes: 1) * All monitoring wells will be sampled for total metals. Monitoring wells will be sampled for dissolved metals as needed based upon turbidity readings in the field. All surface water samples will be sampled for both total and dissolved metals.

2) ** Monitoring wells in the 3rd WBZ will be sampled annually and the results will be included in second-half semi-annual reports.

TABLE 3
GROUNDWATER SAMPLING SUMMARY
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328
(Past 8 Quarters)

Monitoring/ Sample Well No. & Date	Groundwater Elevation			Groundwater Quality Data					
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	Temperature (°C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (Standard Units)	ORP (mV)	Turbidity (NTU)
WATER WELLS									
(b) (6) Well									
June-14	NA	NA	NA	22.33	0.289	2.06	7.02	-143	1.3
August-14	NA	NA	NA	25.18	0.078	2.69	8.22	-48	0.9
October-14	NA	NA	NA	20.99	0.298	5.30	7.80	-109	0.0
January-15	NA	NA	NA	20.35	0.331	2.34	8.13	224	3.2
May-15	NA	NA	NA	21.45	0.291	5.91	8.27	-96	0.9
August-15	NA	NA	NA	23.08	0.306	2.39	8.24	-212	1.2
October-15	NA	NA	NA	20.82	0.284	3.54	8.27	-103	2.5
February-16	NA	NA	NA	22.34	0.295	3.26	8.24	-239	3.3
WW-04									
June-14	NA	NA	NA	21.01	0.300	5.82	8.29	-223	0.6
August-14	NA	NA	NA	24.48	0.302	2.26	8.47	-156	0.8
October-14	NA	NA	NA	20.75	0.304	5.38	8.61	-171	0.1
January-15	NA	NA	NA	19.28	0.301	2.78	8.67	164	5.1
May-15	NA	NA	NA	21.26	0.294	3.28	8.35	-166	2.5
August-15	NA	NA	NA	21.81	0.338	3.12	8.50	-183	1.9
October-15	NA	NA	NA	20.59	0.290	2.27	8.91	-223	0.9
February-16	NA	NA	NA	21.16	0.301	2.73	8.89	-311	3.5
WW-09									
June-14	NA	NA	NA	22.31	0.297	5.93	7.49	-148	1.2
August-14	NA	NA	NA	23.54	0.300	1.59	8.36	-72	2.6
October-14	NA	NA	NA	20.66	0.298	7.96	7.65	-77	1.9
January-15	NA	NA	NA	17.48	0.298	6.50	8.61	196	4.3
May-15	NA	NA	NA	21.40	0.309	6.48	8.41	-63	2.6
August-15	NA	NA	NA	23.15	0.306	6.56	8.48	-216	0.6
October-15	NA	NA	NA	20.99	0.284	5.28	8.31	-58	1.5
February-16	NA	NA	NA	19.42	0.296	3.76	8.51	-244	6.2
North Well									
June-14	NA	NA	NA	22.77	0.293	1.77	8.61	-232	0.0
August-14	NA	NA	NA	25.38	0.294	1.10	8.37	-101	0.2
October-14	NA	NA	NA	23.66	0.303	1.87	8.54	212	0.7
January-15	NA	NA	NA	21.63	0.296	1.99	8.86	181	3.8
May-15	NA	NA	NA	22.75	0.307	1.77	8.91	-99	1.4
August-15	NA	NA	NA	24.42	0.304	2.97	8.80	-246	1.4
October-15	NA	NA	NA	22.72	0.286	4.16	8.88	-225	2.0
February-16	NA	NA	NA	22.17	0.301	4.11	8.31	-174	4.3
South Well									
June-14	NA	NA	NA	22.40	0.301	3.17	8.62	67	0.1
August-14	NA	NA	NA	22.04	0.312	2.0	8.31	-151	0.8
October-14	NA	NA	NA	21.92	0.302	2.28	8.94	-132	1.0
January-15	NA	NA	NA	19.08	0.300	1.70	9.08	183	3.3
May-15	NA	NA	NA	22.03	0.309	4.34	8.86	-79	2.7
August-15	NA	NA	NA	22.83	0.305	3.80	8.87	-210	1.0
October-15	NA	NA	NA	21.27	0.288	7.72	8.93	-205	1.9
February-16	NA	NA	NA	21.66	0.300	2.79	8.82	4.38	6.92

Notes: 1) Top-of-casing (TOC) elevation - (depth to fluid) = Corrected GROUNDWATER (GW) elevation
2) Additional quarters will be added as sampling events continue
Abbrev.: NA = Not Appliciable mg/L = milligrams per Liter NF = Not Found
NM = Not Measured NS = Not Sampled

TABLE 4
CURRENT QUARTER GROUNDWATER ANALYTICAL SUMMARY
TOTAL METALS

Delatte Metals Superfund Site
Ponchatoula, Louisiana
Agency Interest No. 2328

Line #	COC/CAS	Method	Sample ID	Media	Lab Sample Identification	Sample Date	Option Used	Limiting Standard mg/L	Reporting Limit mg/L	Sample Result mg/L	QA/QC Flag	Exceed Limiting Standard
1	Total Arsenic/7440-38-2	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	RECAP SS	0.01	0.001	0.0014		No
2	Total Cadmium/7440-43-9	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	RECAP SS	0.005	0.001	<0.0010		No
3	Total Lead/7439-92-1	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	EPA Site Cleanup	0.015	0.001	<0.0010		No
4	Total Manganese/7439-96-5	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	RECAP SS	0.51	0.001	0.0227		No
5	Total Nickel/7440-02-0	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	RECAP SS	0.073	0.001	<0.0010		No
6	Total Zinc/7440-66-6	EPA 6020	(b) (6) WELL	Groundwater	2033118003	2/29/2016	RECAP SS	1.1	0.005	<0.0050		No
7	Total Arsenic/7440-38-2	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	RECAP SS	0.01	0.001	<0.0010		No
8	Total Cadmium/7440-43-9	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	RECAP SS	0.005	0.001	<0.0010		No
9	Total Lead/7439-92-1	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	EPA Site Cleanup	0.015	0.001	<0.0010		No
10	Total Manganese/7439-96-5	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	RECAP SS	0.51	0.001	0.0031		No
11	Total Nickel/7440-02-0	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	RECAP SS	0.073	0.001	<0.0010		No
12	Total Zinc/7440-66-6	EPA 6020	WW-04	Groundwater	2033118001	2/29/2016	RECAP SS	1.1	0.005	<0.0050		No
13	Total Arsenic/7440-38-2	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	RECAP SS	0.01	0.001	<0.0010		No
14	Total Cadmium/7440-43-9	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	RECAP SS	0.005	0.001	<0.0010		No
15	Total Lead/7439-92-1	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	EPA Site Cleanup	0.015	0.001	<0.0010		No
16	Total Manganese/7439-96-5	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	RECAP SS	0.51	0.001	0.0042		No
17	Total Nickel/7440-02-0	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	RECAP SS	0.073	0.001	<0.0010		No
18	Total Zinc/7440-66-6	EPA 6020	SOUTH WELL	Groundwater	2033118005	2/29/2016	RECAP SS	1.1	0.005	0.0137		No
19	Total Arsenic/7440-38-2	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	RECAP SS	0.01	0.001	<0.0010		No
20	Total Cadmium/7440-43-9	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	RECAP SS	0.005	0.001	<0.0010		No
21	Total Lead/7439-92-1	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	EPA Site Cleanup	0.015	0.001	0.0024		No
22	Total Manganese/7439-96-5	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	RECAP SS	0.51	0.001	0.0034		No
23	Total Nickel/7440-02-0	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	RECAP SS	0.073	0.001	<0.0010		No
24	Total Zinc/7440-66-6	EPA 6020	NORTH WELL	Groundwater	2033118004	2/29/2016	RECAP SS	1.1	0.005	<0.0050		No
25	Total Arsenic/7440-38-2	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	RECAP SS	0.01	0.001	<0.0010		No
26	Total Cadmium/7440-43-9	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	RECAP SS	0.005	0.001	<0.0010		No
27	Total Lead/7439-92-1	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	EPA Site Cleanup	0.015	0.001	0.0014		No
28	Total Manganese/7439-96-5	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	RECAP SS	0.51	0.001	0.019		No
29	Total Nickel/7440-02-0	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	RECAP SS	0.073	0.001	<0.0010		No
30	Total Zinc/7440-66-6	EPA 6020	WW-09	Groundwater	2033118002	2/29/2016	RECAP SS	1.1	0.005	<0.0050		No

HISTORICAL GROUNDWATER MONITORING SUMMARY
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUSISANA
AGENCY INTEREST NO. 2328

Monitoring/Sampling Period: Past 8 Quarters

	Potentiometric Data			Groundwater Analytical Data											
					Total Metals						Dissolved Metals				
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	pH Standard Unit	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)
WATER WELLS															
l															
	NA	NA	NA	7.02	0.0015	< 0.0010	0.0011	0.0416	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.22	0.0017	< 0.0010	< 0.0010	0.0243	< 0.0010	0.0063	NA	NA	NA	NA	NA
	NA	NA	NA	7.80	0.0016	<0.0010	<0.0010	0.0231	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.13	0.0015	<0.0010	<0.0010	0.0231	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.27	0.0015	<0.0010	<0.0010	0.0231	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.24	0.0015	<0.0010	<0.0010	0.0217	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.27	0.0016	<0.0010	<0.0010	0.0228	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.24	0.0014	<0.0010	<0.0010	0.0227	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.29	< 0.0010	< 0.0010	< 0.0010	0.0031	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.47	< 0.0010	< 0.0010	< 0.0010	0.0062	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.61**	<0.0010	<0.0010	<0.0010	0.0028	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.67**	<0.0010	<0.0010	<0.0010	0.0032	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.35	<0.0010	<0.0010	<0.0010	0.0032	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.50	<0.0010	<0.0010	<0.0010	0.0029	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.91**	<0.0010	<0.0010	<0.0010	0.0029	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.89**	<0.0010	<0.0010	<0.0010	0.0031	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	7.49	< 0.0010	< 0.0010	< 0.0010	0.0181	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.36	< 0.0010	< 0.0010	< 0.0010	0.0203	< 0.0010	< 0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	7.65	<0.0010	<0.0010	<0.0010	0.0188	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.61**	<0.0010	<0.0010	<0.0010	0.0189	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.41	<0.0010	<0.0010	<0.0010	0.0191	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.48	<0.0010	<0.0010	<0.0010	0.0186	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.31	<0.0010	<0.0010	0.0011	0.0306	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.51**	<0.0010	<0.0010	0.0014	0.0190	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.61**	< 0.0010	< 0.0010	< 0.0010	0.0033	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.37	< 0.0010	< 0.0010	0.004	0.0085	< 0.0010	0.0079	NA	NA	NA	NA	NA
	NA	NA	NA	**8.54**	<0.0010	<0.0010	<0.0010	0.0034	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.86**	<0.0010	<0.0010	<0.0010	0.0027	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.91**	<0.0010	<0.0010	<0.0010	0.0053 J	<0.0010 J	<0.0050 J	NA	NA	NA	NA	NA
	NA	NA	NA	**8.80**	<0.0010	<0.0010	0.0027	0.0048	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	**8.88**	<0.0010	<0.0010	0.0035	0.0039	<0.0010	<0.0050	NA	NA	NA	NA	NA
	NA	NA	NA	8.31	<0.0010	<0.0010	0.0024	0.0034	<0.0010	<0.0050	NA	NA	NA	NA	NA
LEANUP or LDEQ RECAP SS				**6.5-8.5**	**0.010**	**0.005**	**0.015**	**0.51**	**0.073**	**1.1**	**0.010**	**0.005**	**0.015**	**0.51**	**0.073**

HISTORICAL GROUNDWATER MONITORING SUMMARY
DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUSISANA
AGENCY INTEREST NO. 2328

Monitoring/Sampling Period: Past 8 Quarters

	Potentiometric Data			Groundwater Analytical Data											
					Total Metals						Dissolved Metals				
	TOC Elevation (ft-NGVD)	Depth to Water (feet)	Corrected GW Elev. (ft-NGVD)	pH Standard Unit	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Lead (mg/L)	Manganese (mg/L)	Nickel (mg/L)
WATER WELLS															
	NA	NA	NA	**8.62**	< 0.0010	< 0.0010	< 0.0010	0.0037	< 0.0010	< 0.005	NA	NA	NA	NA	NA
	NA	NA	NA	8.31	< 0.0010	< 0.0010	< 0.0010	0.0042	< 0.0010	0.0199	NA	NA	NA	NA	NA
	NA	NA	NA	**8.94**	<0.0010	<0.0010	<0.0010	0.0035	<0.0010	0.0168	NA	NA	NA	NA	NA
	NA	NA	NA	**9.08**	<0.0010	<0.0010	<0.0010	0.0040	<0.0010	0.0099	NA	NA	NA	NA	NA
	NA	NA	NA	**8.86**	<0.0010	<0.0010	<0.0010	0.0044	<0.0010	0.0089	NA	NA	NA	NA	NA
	NA	NA	NA	**8.87**	<0.0010	<0.0010	<0.0010	0.0041	<0.0010	0.006	NA	NA	NA	NA	NA
	NA	NA	NA	**8.93**	<0.0010	<0.0010	<0.0010	0.0035	<0.0010	0.0077	NA	NA	NA	NA	NA
	NA	NA	NA	**8.82**	<0.0010	<0.0010	<0.0010	0.0042	<0.0010	0.0137	NA	NA	NA	NA	NA
LEANUP or LDEQ RECAP SS				**6.5-8.5**	**0.010**	**0.005**	**0.015**	**0.51**	**0.073**	**1.1**	**0.010**	**0.005**	**0.015**	**0.51**	**0.073**

f-casing (TOC) elevation - (depth to fluid) = Corrected GROUNDWATER (GW) elevation

ecific cleanup standards were found in previous reports for Lead and pH only. The additional screening standards are from the LDEQ RECAP Screening Standards (SS), were provided by the LDEQ.

te Cleanup Standard for pH = 7.0 s.u.; however EPA Drinking Water Standards for pH = 6.5-8.5 s.u. and the EPA Storm Water Discharge Standards for -9.0 s.u are being used for comparison purposes.

alues Exceed Site Cleanup or RECAP SS

ng Limits from the analytical reports are used for non-detect results

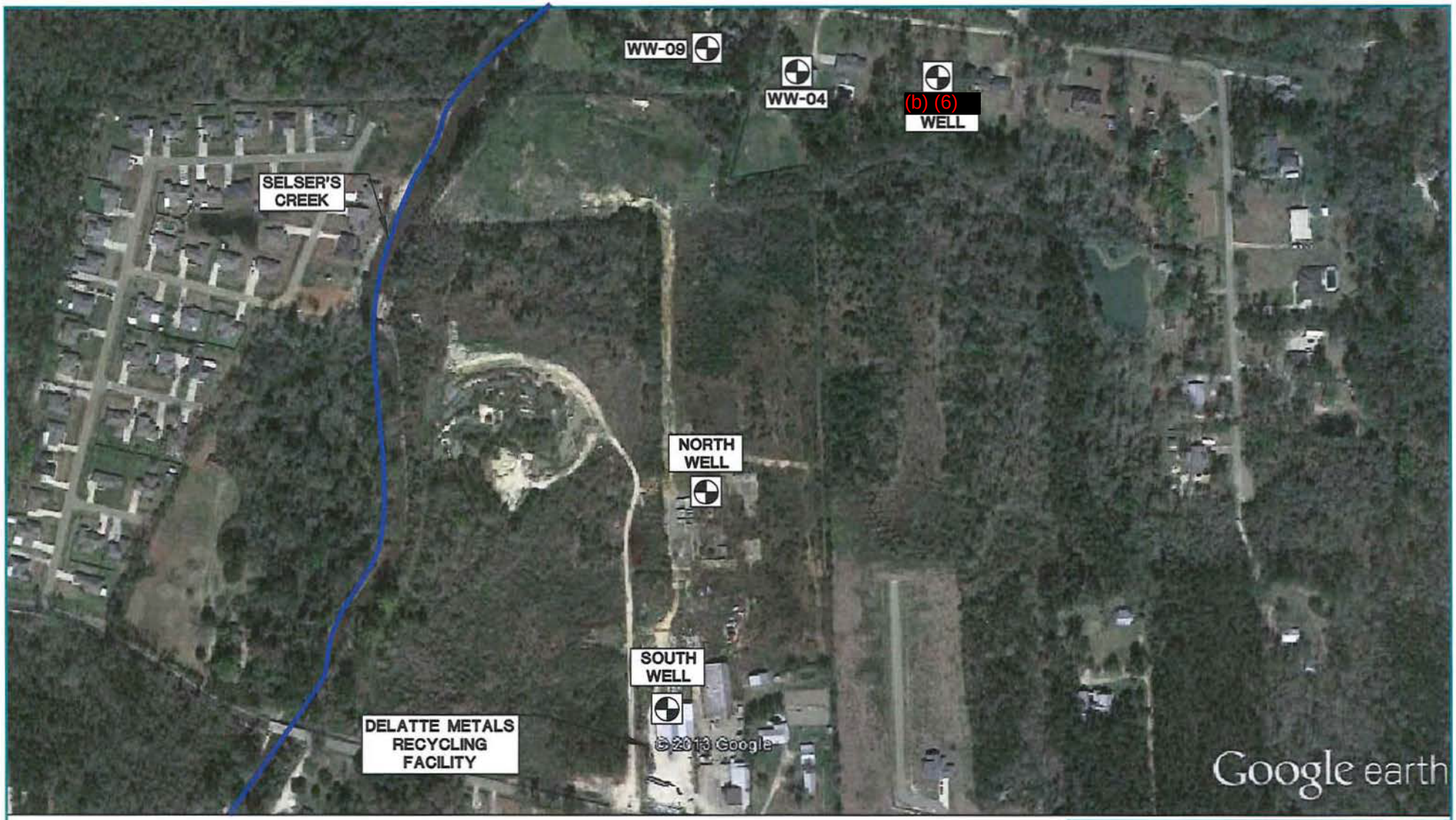
ot Applicable mg/L= milligrams per Liter NF = Not Found

Not Measured NS=Not Sampled J = Flagged by lab - An estimated value between the MDL and PQL is provided.

rrogate Recovery Unreportable due to Dilution B/V = Analyte Detected in the associated Method Blank above Rep. Limit

ecovery in the Matrix Spike and Matrix Spike Duplicate exceeded the control limit acceptance criteria E= Concentrations Exceeding Calibration Rand of Instrument

FIGURES



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕ WATER SUPPLY WELL

N

330 0 330

APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG	CHECKED BY		DRAWING NO. WW
	01/06/14	APPROVED BY		

FIGURE 1

WATER WELL LOCATION MAP

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.

REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.001)	LEAD CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTE:

THE EPA CLEANUP LEVEL FOR pH IS 7.0 S.U..
THE EPA ACCEPTABLE RANGE FOR DRINKING WATER, 6.5-8.5 S.U. IS USED HERE.

N

DRAWN BY:	LDG/NR	CHECKED BY		DRAWING NO. QTR/001
	4/30/16	APPROVED BY		

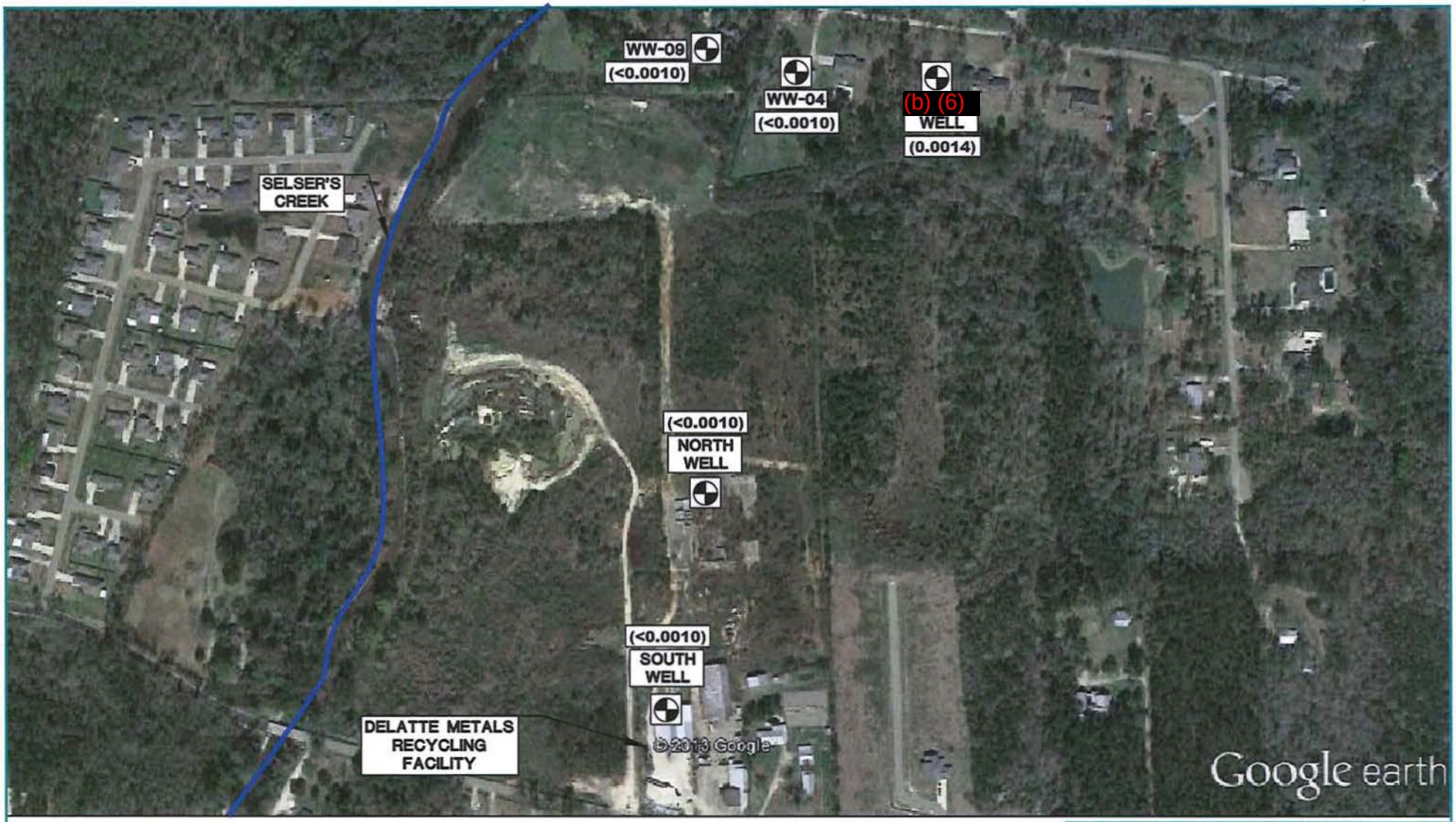
FIGURE 2

WATER WELL
pH CONCENTRATION MAP
(FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.001)	ARSENIC CONCENTRATION IN mg/L

NOTES:
1) NO SITE CLEANUP STANDARDS WERE FOUND FOR ARSENIC. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.01 mg/L.
2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR ARSENIC.

N

330 0 330
APPROXIMATE SCALE IN FEET

DRAWN BY:	LDG/NR	CHECKED BY		DRAWING NO. QTR/002
	4/30/2016	APPROVED BY		

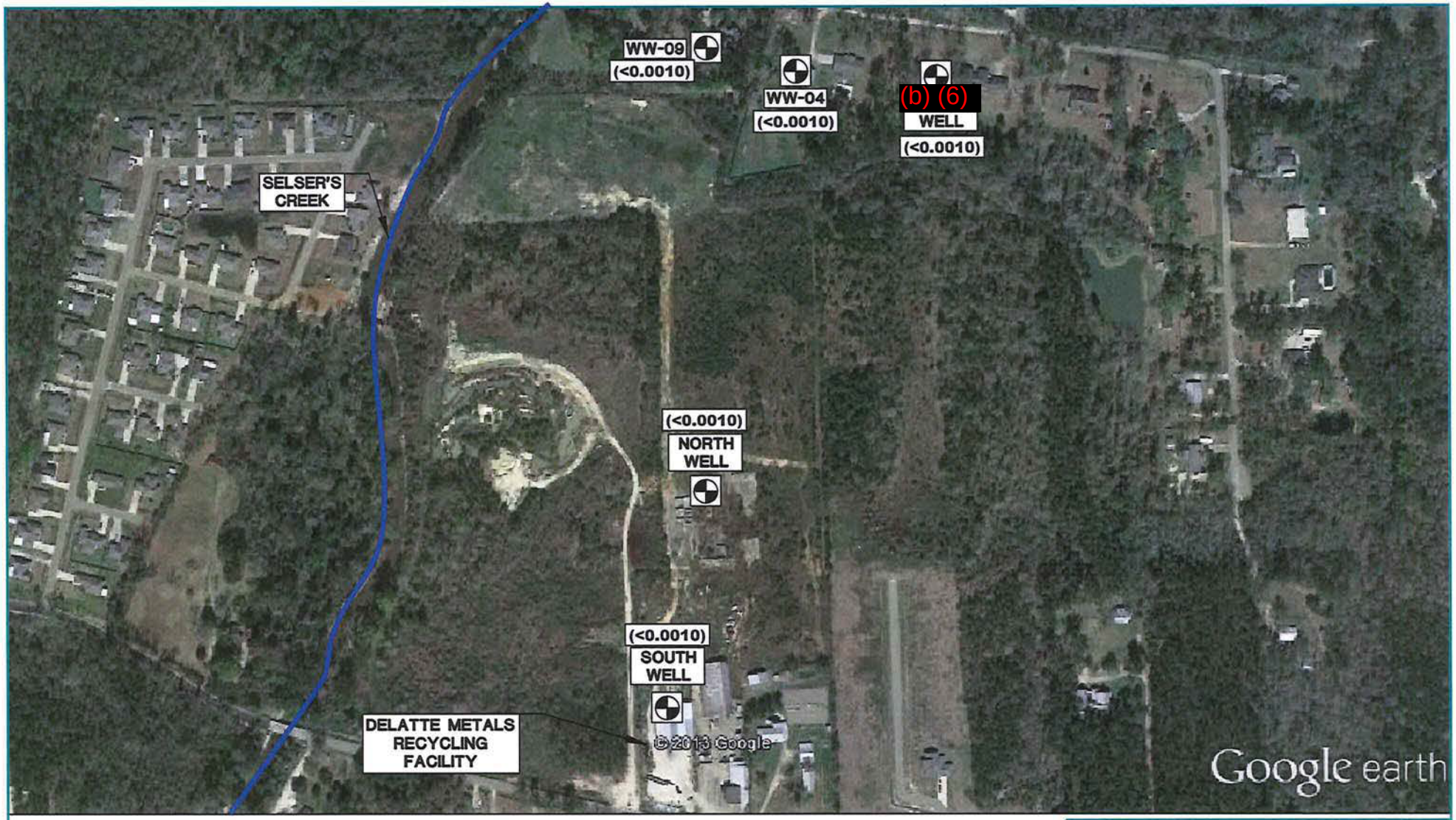
FIGURE 3

WATER WELL ARSENIC CONCENTRATION MAP (FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.001)	CADMIUM CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTES:

1) NO SITE CLEANUP STANDARDS WERE FOUND FOR CADMIUM. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.005 mg/L.
2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR CADMIUM.

N

DRAWN BY:	LDG/LB	CHECKED BY		DRAWING NO.
	4/30/2016	APPROVED BY		QTR/003

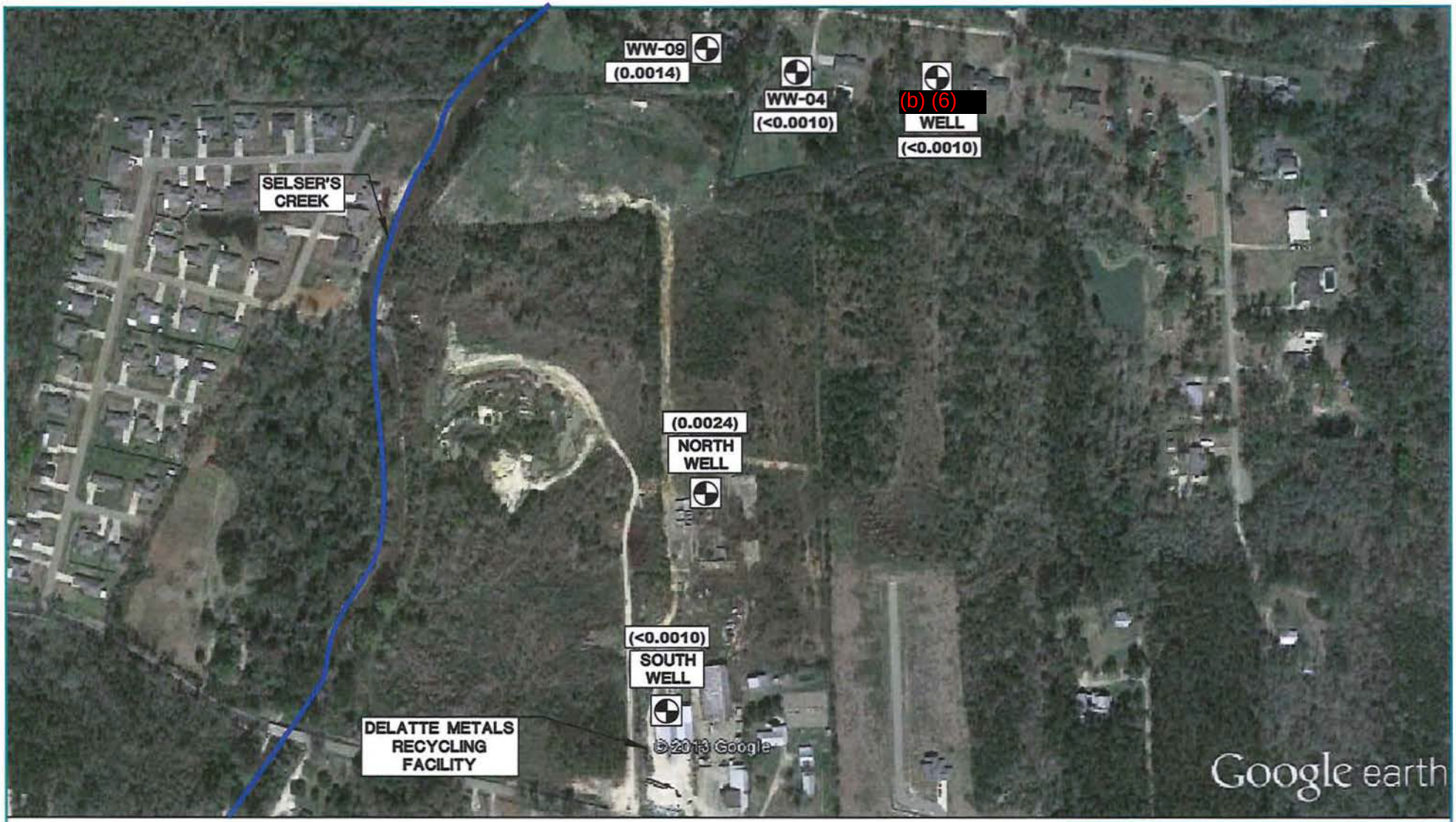
FIGURE 4

WATER WELL CADMIUM CONCENTRATION MAP (FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.



REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.001)	LEAD CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTES:
1) THE EPA SITE CLEANUP STANDARD FOR LEAD IS 0.015 mg/L.
2) NO WELLS SAMPLED EXCEEDED THE EPA SITE CLEANUP STANDARD.

N

DRAWN BY:	LDG/LB	CHECKED BY		DRAWING NO.
	4/30/2016	APPROVED BY		QTR/004

FIGURE 5

WATER WELL LEAD CONCENTRATION MAP (FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.

REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(0.0181)	MANGANESE CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTES:

1) NO SITE CLEANUP STANDARDS WERE FOUND FOR MANGANESE. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.51 mg/L.
2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR MANGANESE.

N

DRAWN BY:	LDG/LB	CHECKED BY		DRAWING NO. QTR/005
	4/30/2016	APPROVED BY		

FIGURE 6

WATER WELL MANGANESE CONCENTRATION MAP (FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.

REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.001)	NICKEL CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTES:

1) NO SITE CLEANUP STANDARDS WERE FOUND FOR NICKEL. SEMS USED LDEQ RECAP SCREENING STANDARD OF 0.073 mg/L.
2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR NICKEL.

N

DRAWN BY:	LDG/NR	CHECKED BY		DRAWING NO.
	4/30/2016	APPROVED BY		QTR/006

FIGURE 7

WATER WELL
NICKEL CONCENTRATION MAP
(FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.

REFERENCE: MAP TAKEN FROM GOOGLE EARTH

LEGEND

⊕	WATER SUPPLY WELL
mg/L	MILLIGRAMS PER LITER
(<0.005)	ZINC CONCENTRATION IN mg/L

330 0 330

APPROXIMATE SCALE IN FEET

NOTES:

1) NO SITE CLEANUP STANDARDS WERE FOUND FOR ZINC. SEMS USED LDEQ RECAP SCREENING STANDARD OF 1.1 mg/L.
2) NO WELLS SAMPLED EXCEEDED LDEQ RECAP SCREENING STANDARD FOR ZINC.

N

DRAWN BY:	LDG/NR	CHECKED BY		DRAWING NO.
	4/30/2016	APPROVED BY		QTR/007

FIGURE 8

WATER WELL ZINC CONCENTRATION MAP (FIRST QUARTER 2016)

DELATTE METALS SUPERFUND SITE
PONCHATOULA, LOUISIANA
AGENCY INTEREST NO. 2328

PREPARED FOR:
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

SEMS Inc.

ATTACHMENT A

FIELD DATA SHEETS & WASTE MANIFESTS

DELATTE METALS SUPERFUND SITE OPERATION AND MAINTENANCE ACTIVITY LOG

PROJECT GENERAL INFORMATION

Client: LDEQ

Date: 2/29/16

Facility #: Delatte Metals Superfund Site

Activities: Notify facility of arrival. Inspect facility monitoring wells and PRB for integrity. Gauge, and sample appropriate wells.

Address: Weinberger Road, Ponchatoula, LA

Project #: 207-0029

SEMS ACTIVITY DOCUMENTATION (Continued On Back)

Time (Military)	Notes & Observations
Arrived : (1245)	Notified facility personnel of arrival : (YES) NO Have H&S plan : (YES) NO
	Potentiometric data collection procedures: Locate monitoring wells, open to allow for water level equilibration, inspect/document well integrity, measure total well depth, measure depth-to-water (to 0.00'). Measure wells from least contaminated to most contaminated. Well purging procedures: Use low flow micro purge methods and monitor water quality characteristics. When water quality characteristics stabilize record characteristics and collect sample. Transport purge water to on-site 55-gallon drums for containment and disposal. Groundwater sample collection procedures: Collect samples with dedicated well equipment by low flow micro purge methods after water quality characteristics have stabilized. Transfer samples to a proper container (on ice) for transport to the designated lab for analyses. Ship samples for overnight delivery, with completed chain-of-custody documentation. Sample wells in the same order as they were purged.
Departed : (1500)	

SEMS EQUIPMENT & MATERIALS USED

Task	Description	Accounting Code	Unit	Quantity
03	Operation, maintenance and related activities per well.		well	5
04	Surface Water sampling activities per well		well	—
09	Well Labels		each	—
10	Well Locks		each	—
11	Concrete Pad		each	—
12	Well cover		each	—
13	Repainting		each (well)	—
14	Post Replacement		each	—
15	Clearing Access to wells		each (clearing event)	—

SEMS PERSONNEL INFORMATION

Employee Name: L. Braud

Employee Signature: L Braud

SEMS, Inc.

DELATTE METALS SUPERFUND SITE OPERATION AND MAINTENANCE ACTIVITY LOG

SEMS EQUIPMENT & MATERIALS USED

Task	Description	Accounting Code	Unit	Quantity
				—
16	Characterization / profiling related to disposal		Each profile	—
17	Disposal of Decon Water and Purgewater - Haz		gallon	—
18	Disposal of Decon Water and Purgewater - Nonhaz		gallon	—
19	Disposal of PPE, Haz		drum	—
20	Disposal of PPE, Nonhaz		drum	—

Employee Name: L. Braud Employee Signature: L Braud

SEMS, Inc.

TAILGATE SAFETY MEETING

GENERAL INFORMATION

Company: SEMS, Inc.

Date: 2-29-16 Time: 1245 Job Number: 207-0029

Customer: LDEQ - Delatte Metals Superfund Address:

Job Location: 19113 Weinberger Road, Ponchatoula, LA

Type of Work: Water well sampling

Protective Clothing/Equipment: Level D - Safety toe shoes, long pants, nitrile gloves

SAFETY TOPICS

Chemical Hazards: low pH and high metals concentrations in groundwater

Physical Hazards: heat stress, wasps, snakes, ticks, dogs on (b) (6) property, heavy lifting

Emergency Procedures: First Aid, Call 911 and proceed to hospital. Meet at front entrance if problems occur.

Hospital/Clinic: North Oaks Hospital Phone: (985) 345-2700

Hospital Address: 15790 Paul Vega Dr. Hammond, LA

Special Equipment:

Other:

ATTENDEES

NAME PRINTED	SIGNATURE
Larry Braud	

SITE SUPERVISOR

SIGNATURE

Delatte Metals O&M QA/QC Checklist

Page___of____

SEMS Project #: 207-0029
Field Crew: _____
_____
_____

MS/MSD (Every 20 Samples)
Field Duplicate (Every 10 Samples)

MS/ MSD	Field Duplicate	Sample ID on COC	Sample Location ID of Original Sample (Field Duplicate)	Date	Time	Notes
	Y	North Well	Dup	2/29/16	1315	
X		MS/MSD	South well	2/29/16	1338	

Delatte Metals O&M PRB Inspection Checklist

SEMS Project #: 207-0016
Field Crew: B Braud

Date Inspected 2/24/16

Is the soil overlying the PRB cracked, eroded, or show any other pathways that could allow for surface water to enter the subsurface?	
PRB Cleared	✓
PRB Accessible	✓
PRB Cracks Identified	NA
PRB Erosion Identified	NA
Photos Taken	No
NOTES:	

PRB=Permeable reactive barrier

LOW-FLOW GROUNDWATER SAMPLING LOG

Dup Collected

Project: Delatte Metals Superfund Site
Project No.: 207-0029
Site Location: Ponchatoula, Louisiana
Monitor Well No.: North Well
Date Purged/Sampled: 2-24-16 **Sampled By:** LB

MONITOR WELL INFORMATION

Total Depth of Monitor Well (**TD**): UNK ft.
Static Depth to Groundwater (**DTW**): UNK ft.
Screen Length (**SL**) from Boring Logs: UNK ft.
Depth to Top of Well Screen (**TD-SL**): UNK ft.
Height of Water Column (**H=TD-DTW**): UNK ft.

Purge Flow Rate: _____ mL/min
Volume Purged: _____ gallons
Date/Time of Sample: 2-24@1315 Time

WELL CASING VOLUME CALCULATIONS

☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H·x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify)

METHOD OF SAMPLE COLLECTION

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1315	—	22.17	0.301	4.11	8.31	-174	4.3	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
2. Take measurements every 3 to 5 minutes.

Total Metals Collected	Y	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	

SHEET 1 OF 1

MS/MSD Collected

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
Project No.: 207-0029
Site Location: Ponchatoula, Louisiana
Monitor Well No.: South Well
Date Purged/Sampled: 2-29-16 **Sampled By:** LB

MONITOR WELL INFORMATION

Total Depth of Monitor Well (**TD**): UNK ft.
Static Depth to Groundwater (**DTW**): UNK ft.
Screen Length (**SL**) from Boring Logs: UNK ft.
Depth to Top of Well Screen (**TD-SL**): UNK ft.
Height of Water Column (**H=TD-DTW**): UNK ft.

Purge Flow Rate: _____ mL/min
Volume Purged: _____ gallons
Date/Time of Sample: 2-29 @1338 Time

WELL CASING VOLUME CALCULATIONS

☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify)

METHOD OF SAMPLE COLLECTION

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1338	—	21.6	0.300	2.79	8.82	4.38	6.92	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
2. Take measurements every 3 to 5 minutes.

Total Metals Collected	X	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	

SHEET 1 OF 1

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
Project No.: 207-0029
Site Location: Ponchatoula, Louisiana
Monitor Well No.: (b) (6) Well
Date Purged/Sampled: 2-24-16 **Sampled By:** LB

MONITOR WELL INFORMATION

Total Depth of Monitor Well (**TD**): UNK ft.
Static Depth to Groundwater (**DTW**): UNK ft.
Screen Length (**SL**) from Boring Logs: UNK ft.
Depth to Top of Well Screen (**TD-SL**): UNK ft.
Height of Water Column (**H=TD-DTW**): UNK ft.

Purge Flow Rate: _____ mL/min
Volume Purged: _____ gallons
Date/Time of Sample: 2/24@1407 Time

WELL CASING VOLUME CALCULATIONS

☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify)

METHOD OF SAMPLE COLLECTION

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1407	—	22.34	0.295	3.26	8.24	-239	3.3	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
2. Take measurements every 3 to 5 minutes.

Total Metals Collected	X	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	

SHEET 1 OF 1

(b) (6) Well

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
Project No.: 207-0029
Site Location: Ponchatoula, Louisiana
Monitor Well No.: WW-04
Date Purged/Sampled: 2-24-16 **Sampled By:** LB

MONITOR WELL INFORMATION

Total Depth of Monitor Well (**TD**): UNK ft.
Static Depth to Groundwater (**DTW**): UNK ft.
Screen Length (**SL**) from Boring Logs: UNK ft.
Depth to Top of Well Screen (**TD-SL**): UNK ft.
Height of Water Column (**H=TD-DTW**): UNK ft.

Purge Flow Rate: _____ mL/min
Volume Purged: _____ gallons
Date/Time of Sample: 2-24-16 @ 1415 Time

WELL CASING VOLUME CALCULATIONS

☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify)

METHOD OF SAMPLE COLLECTION

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1415	-	21.16	0.301	2.73	8.89	-311	3.5	-

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
2. Take measurements every 3 to 5 minutes.

Total Metals Collected	X	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	

SHEET 1 OF 1

LOW-FLOW GROUNDWATER SAMPLING LOG

Project: Delatte Metals Superfund Site
Project No.: 207-0029
Site Location: Ponchatoula, Louisiana
Monitor Well No.: WW-09
Date Purged/Sampled: 2-29-16 **Sampled By:** LB

MONITOR WELL INFORMATION

Total Depth of Monitor Well (**TD**): 60 ft.
Static Depth to Groundwater (**DTW**): UNK ft.
Screen Length (**SL**) from Boring Logs: UNK ft.
Depth to Top of Well Screen (**TD-SL**): UNK ft.
Height of Water Column (**H=TD-DTW**): UNK ft.

Purge Flow Rate: _____ mL/min
Volume Purged: _____ gallons
Date/Time of Sample: 2-29 @1438 Time

WELL CASING VOLUME CALCULATIONS

☐ 2" Well (H x 0.163 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☒ 4" Well (H x 0.653 gal/ft) _____ gal. (1 well volume) _____ gal. (3 well volumes)
☐ Other: _____

PURGING METHOD

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☒ Water Well
☐ Other (Specify)

METHOD OF SAMPLE COLLECTION

☐ Peristaltic Pump
☐ Low-flow Submersible Pump
☐ Bailer ☐ Dedicated ☐ Disposable
☒ Other (Specify) Let water flow for 15 minutes

LOW-FLOW MONITORING PARAMETERS

Time	Flow Rate	Temp.	Specific Conductivity	Dissolved Oxygen	pH	ORP	Turbidity	DTW
hr/min	mL/min	°C	mS/cm	mg/L	Standard Units	mV	NTU or FTU	feet
Targets	100 - 500 mL/min	+/- 1°C	+/- 3%	+/- 10%	+/- 0.1	+/- 10%	+/- 10% (if >10 NTU or FTU)	<0.3 ft. or Top of Screen
1448	—	19.42	0.296	3.76	8.51	-244	6.2	—

Notes: 1. Well is stable if 3 consecutive measurements of as many as 3 indicators are within their target ranges.
2. Take measurements every 3 to 5 minutes.

Total Metals Collected	X	Dissolved Metals Collected		Sulfates Collected		Sulfides Collected	

SHEET 1 OF 1

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1487956

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: SEMS	Report To:	Attention:
Address:	Copy To:	Company Name: SEMS
	Purchase Order No.:	Address:
Email To:	Project Name:	Pace Quote Reference:
Phone: Fax:	Project Number:	Pace Project Manager:
Requested Due Date/TAT:		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: LA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1																				
2																				
3	(b) (6)																			
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

4

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ATTACHMENT B

LABORATORY ANALYTICAL REPORT

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

March 10, 2016

Nick Rodehorst
SEMS
3801 N. Causeway Blvd
Metairie, LA 70002

RE: Project: DELATTE METALS
Pace Project No.: 2033118

Dear Nick Rodehorst:
Enclosed are the analytical results for sample(s) received by the laboratory on February 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

William Shackelford
william.shackelford@pacelabs.com
Project Manager

Enclosures

cc: Larry Braud, SEMS
Lab Data, SEMS, Inc.
Brian Sullivan, SEMS

Pace Analytical Services, Inc.
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St. Rose, LA 70087
(504)469-0333

CERTIFICATIONS

Project: DELATTE METALS
Pace Project No.: 2033118

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch: 11277CA
Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC): E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006
Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC): T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119

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SAMPLE SUMMARY

Project: DELATTE METALS
Pace Project No.: 2033118

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2033118001	WW-04	Water	02/29/16 14:15	02/29/16 15:42
2033118002	WW-09	Water	02/29/16 14:38	02/29/16 15:42
2033118003	(b) (6) WELL	Water	02/29/16 14:07	02/29/16 15:42
2033118004	NORTH WELL	Water	02/29/16 13:15	02/29/16 15:42
2033118005	SOUTH WELL	Water	02/29/16 13:38	02/29/16 15:42
2033118006	DUPLICATE	Water	02/29/16 00:00	02/29/16 15:42

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SAMPLE ANALYTE COUNT

Project: DELATTE METALS
Pace Project No.: 2033118

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2033118001	WW-04	EPA 6020	KJR	6
2033118002	WW-09	EPA 6020	KJR	6
2033118003	(b) (6) WELL	EPA 6020	KJR	6
2033118004	NORTH WELL	EPA 6020	KJR	6
2033118005	SOUTH WELL	EPA 6020	KJR	6
2033118006	DUPLICATE	EPA 6020	KJR	6

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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: WW-04 **Lab ID: 2033118001** Collected: 02/29/16 14:15 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:14	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:14	7440-43-9	
Lead	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:14	7439-92-1	
Manganese	**3.1**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:14	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:14	7440-02-0	
Zinc	ND	ug/L	5.0	1	03/07/16 07:37	03/09/16 15:14	7440-66-6	

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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: WW-09 **Lab ID: 2033118002** Collected: 02/29/16 14:38 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:18	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:18	7440-43-9	
Lead	**1.4**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:18	7439-92-1	
Manganese	**19.0**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:18	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:18	7440-02-0	
Zinc	ND	ug/L	5.0	1	03/07/16 07:37	03/09/16 15:18	7440-66-6	

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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: (b) (6) **WELL** **Lab ID: 2033118003** Collected: 02/29/16 14:07 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	**1.4**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:29	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:29	7440-43-9	
Lead	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:29	7439-92-1	
Manganese	**22.7**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:29	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:29	7440-02-0	
Zinc	ND	ug/L	5.0	1	03/07/16 07:37	03/09/16 15:29	7440-66-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: NORTH WELL **Lab ID: 2033118004** Collected: 02/29/16 13:15 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:33	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:33	7440-43-9	
Lead	**2.4**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:33	7439-92-1	
Manganese	**3.4**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:33	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:33	7440-02-0	
Zinc	ND	ug/L	5.0	1	03/07/16 07:37	03/09/16 15:33	7440-66-6	

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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: SOUTH WELL **Lab ID: 2033118005** Collected: 02/29/16 13:38 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 14:58	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 14:58	7440-43-9	
Lead	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 14:58	7439-92-1	
Manganese	**4.2**	ug/L	1.0	1	03/07/16 07:37	03/09/16 14:58	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 14:58	7440-02-0	
Zinc	**13.7**	ug/L	5.0	1	03/07/16 07:37	03/09/16 14:58	7440-66-6	

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ANALYTICAL RESULTS

Project: DELATTE METALS
Pace Project No.: 2033118

Sample: DUPLICATE **Lab ID: 2033118006** Collected: 02/29/16 00:00 Received: 02/29/16 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:37	7440-38-2	
Cadmium	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:37	7440-43-9	
Lead	**1.9**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:37	7439-92-1	
Manganese	**3.9**	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:37	7439-96-5	
Nickel	ND	ug/L	1.0	1	03/07/16 07:37	03/09/16 15:37	7440-02-0	
Zinc	ND	ug/L	5.0	1	03/07/16 07:37	03/09/16 15:37	7440-66-6	

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QUALITY CONTROL DATA

Project: DELATTE METALS
Pace Project No.: 2033118

QC Batch: MPRP/3853 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 2033118001, 2033118002, 2033118003, 2033118004, 2033118005, 2033118006

METHOD BLANK: 205081 Matrix: Water
Associated Lab Samples: 2033118001, 2033118002, 2033118003, 2033118004, 2033118005, 2033118006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	1.0	03/09/16 14:50	
Cadmium	ug/L	ND	1.0	03/09/16 14:50	
Lead	ug/L	ND	1.0	03/09/16 14:50	
Manganese	ug/L	ND	1.0	03/09/16 14:50	
Nickel	ug/L	ND	1.0	03/09/16 14:50	
Zinc	ug/L	ND	5.0	03/09/16 14:50	

LABORATORY CONTROL SAMPLE: 205082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	20	19.2	96	83-115	
Cadmium	ug/L	20	19.7	98	85-115	
Lead	ug/L	20	19.3	96	84-115	
Manganese	ug/L	20	20.2	101	85-115	
Nickel	ug/L	20	19.5	97	80-118	
Zinc	ug/L	20	20.1	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 205083 205084

Parameter	Units	2033118005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	20	20	19.5	19.2	97	96	80-120	2	20	
Cadmium	ug/L	ND	20	20	20.0	19.7	100	98	80-120	2	20	
Lead	ug/L	ND	20	20	20.0	19.6	99	97	80-120	2	20	
Manganese	ug/L	4.2	20	20	24.0	23.3	99	96	80-120	3	20	
Nickel	ug/L	ND	20	20	19.4	19.0	96	94	80-120	2	20	
Zinc	ug/L	13.7	20	20	31.7	31.5	90	89	80-120	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

QUALIFIERS

Project: DELATTE METALS
Pace Project No.: 2033118

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: DELATTE METALS
Pace Project No.: 2033118

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2033118001	WW-04	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774
2033118002	WW-09	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774
2033118003	(b) (6) WELL	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774
2033118004	NORTH WELL	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774
2033118005	SOUTH WELL	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774
2033118006	DUPLICATE	EPA 3010	MPRP/3853	EPA 6020	ICPM/1774

Pace

WO# : 2033118

2033118

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1487966

Section A — Required Client Information:

Required Project Information:

Section C — Invoice Information:

Company: SEMS	Report To: Larry Braud	Attention: B. Sullivan
Address: 5001 N. Causeway #209 Metairie LA 70002	Copy To: bsullivan@semsinc.net	Company Name: SEMS
Email To: lbraud@semsinc.net	Purchase Order No.:	Address: 11628 S. Choctaw BR LA
Phone: 342-2340 Fax:	Project Name: Delatte Metals	Pace Quote Reference:
Requested Due Date/TAT: Std.	Project Number: 209-0029	Pace Project Manager: Shackelford
		Pace Profile #: 6306

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: LA

Section D — Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: Metals *	MS/MSD	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	WW-04	WW	G	2/29/16	1415				1			X						X	X			
2	WW-09				1438				1			X						X	X			
3	(b) (6) Well				1407				1			X						X	X			
4	North Well				1315				1			X						X	X			
5	South Well				1338				3			X						X	X	X		
6	Duplicate	V	V	V	—				1			X						X	X			
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* Report only As, Cd, Pb, Mn, and Zn	L. Braud / SEMS	2-29-16	1542	J Miller / Pace	2-29-16	1542	2-1	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: L. Braud

SIGNATURE of SAMPLER: L. Braud

DATE Signed (MM/DD/YY): 2/29/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

WO#: 2033118

PM: WRS Due Date: 03/14/16

CLIENT: 20-sems Met SEMS Metairie

Pace Analytical

1000 Riverbend. Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upo

Project #: 20

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☐ UPS ☐ DHL ☐ USPS ☑ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC] **Custody Seals intact:** ☐Yes ☑No

Therometer Used:	☐ Therm Fisher IR 5 ☐ Therm Fisher IR 6 ☑ Therm Fisher IR 7

Type of Ice: (Wet) Blue None Samples on ice: [see COC]

Cooler Temperature: [see COC] Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3-1-16

Temp must be measured from Temperature blank when present

			Comments:
Temperature Blank Present"?	☐Yes ☑No ☐N/A	1	
Chain of Custody Present:	☑Yes ☐No ☐N/A	2	
Chain of Custody Complete:	☑Yes ☐No ☐N/A	3	
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	4	
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	5	
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	6	
Sufficient Volume:	☑Yes ☐No ☐N/A	7	
Correct Containers Used:	☑Yes ☐No ☐N/A	8	
Filtered vol. Rec. for Diss. tests	☐Yes ☑No ☐N/A	9	
Sample Labels match COC:	☑Yes ☐No ☐N/A	10	
All containers received within manafacture's precautionary and/or expiration dates.	☑Yes ☐No ☐N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	☑Yes ☐No ☐N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	13	If No, was preserative added? ☐Yes ☐No If added record lot no.: HNO_3 _____ H_2SO_4 _____
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	14	
Trip Blank Present:	☐Yes ☑No	15	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

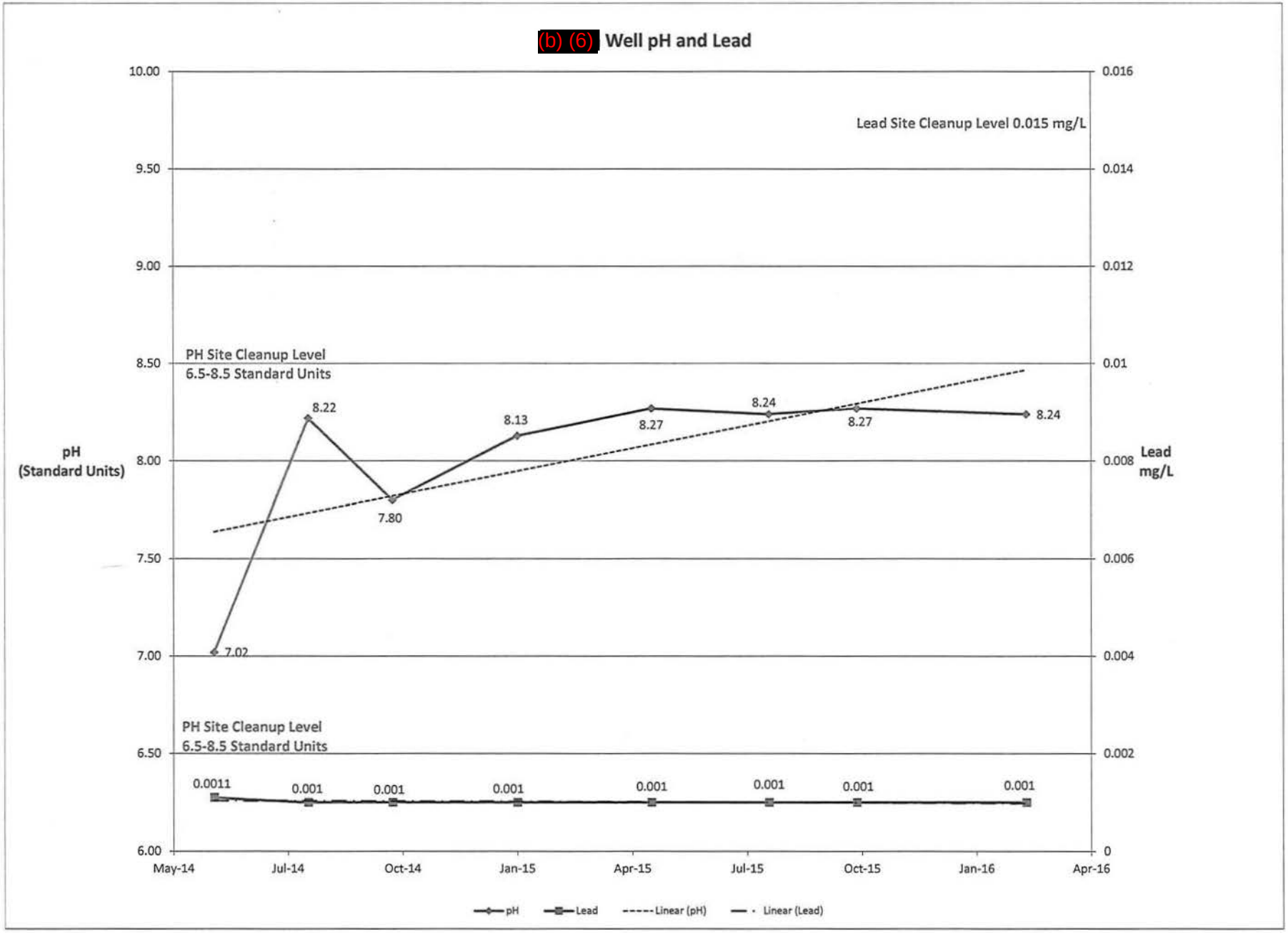
Comments/ Resolution: _____

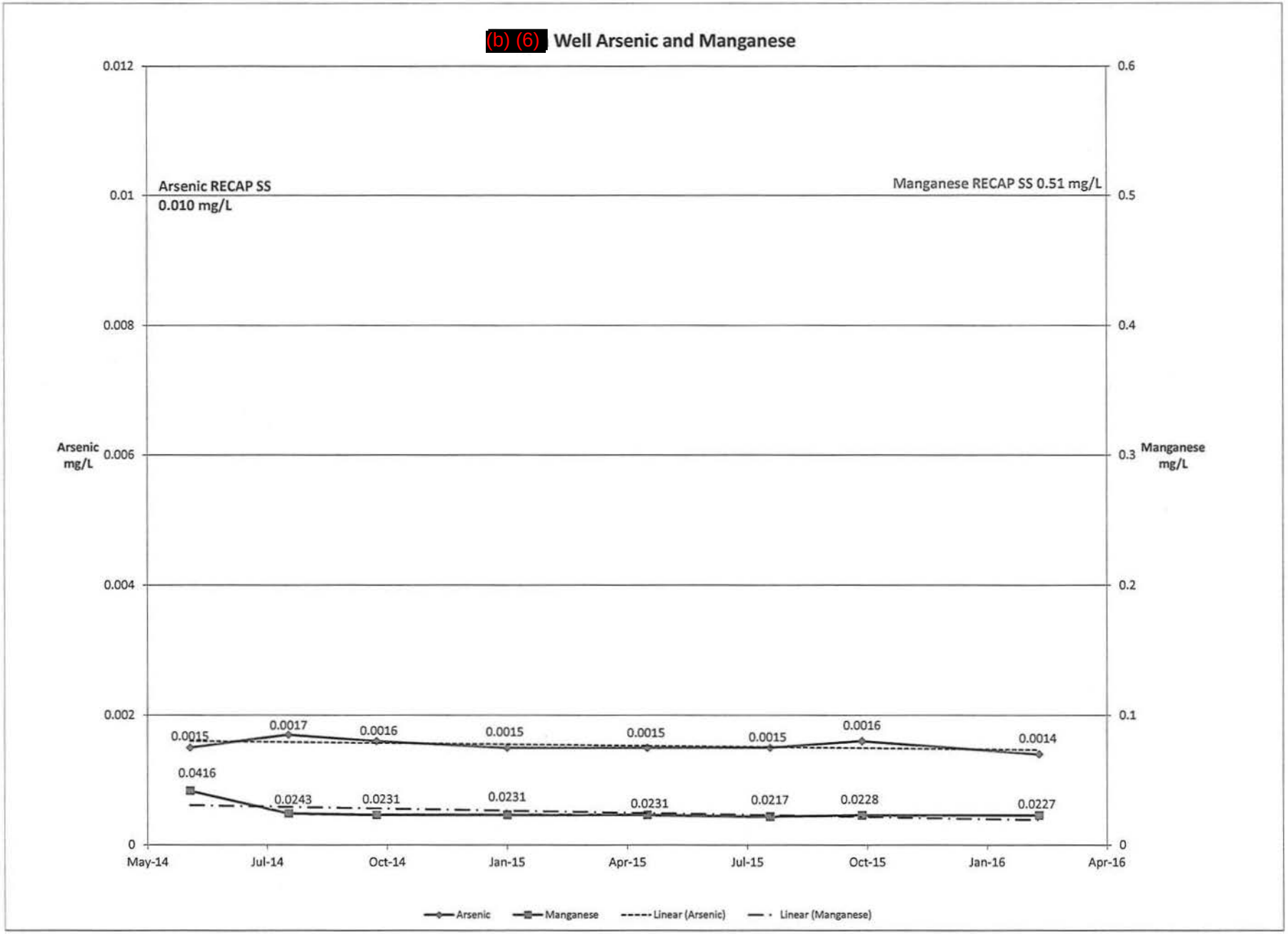
ATTACHMENT C

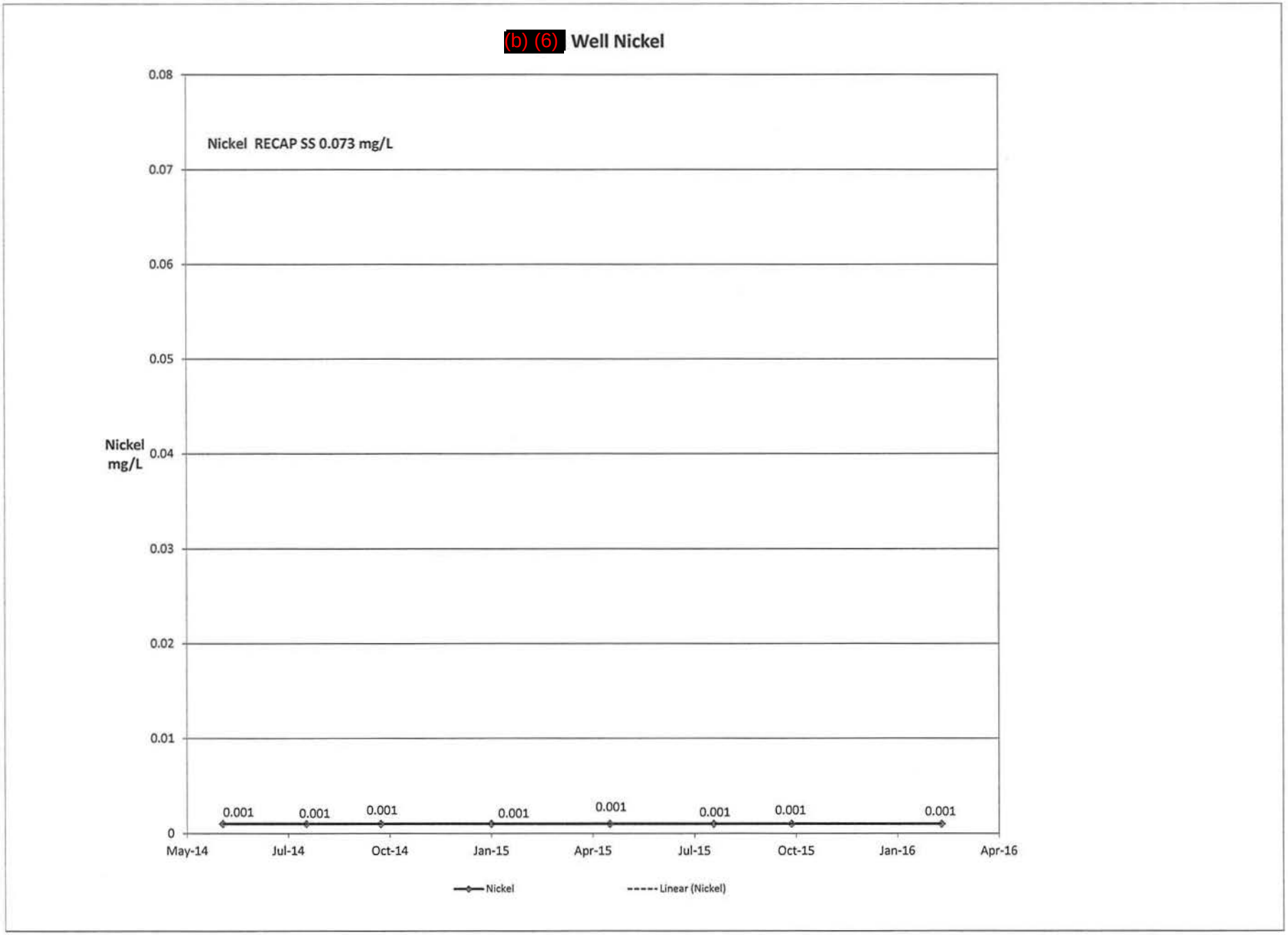
HISTORICAL CONCENTRATION
VS.
TIME GRAPHS

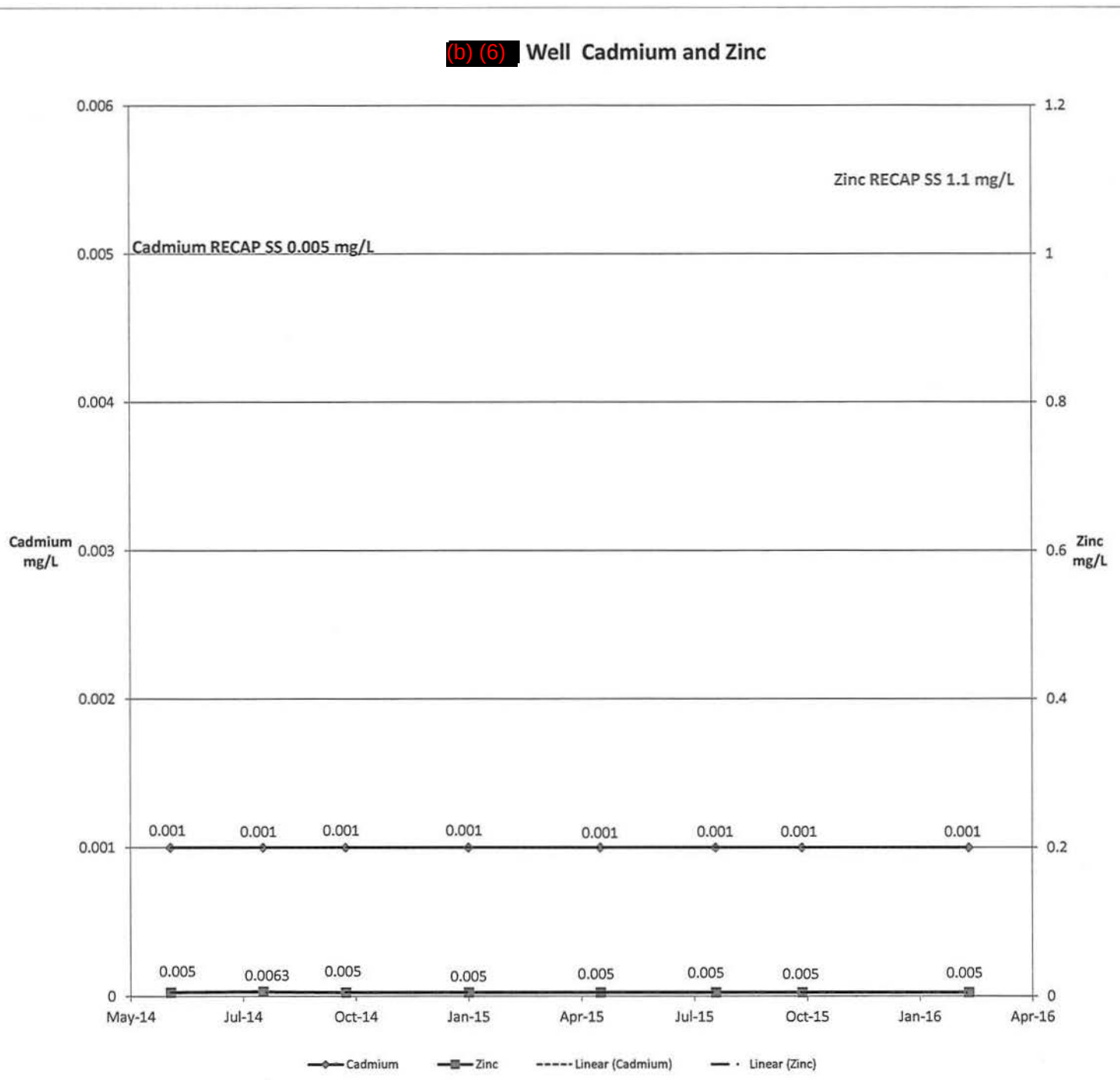
WATER WELLS

(PAST EIGHT QUARTERS)

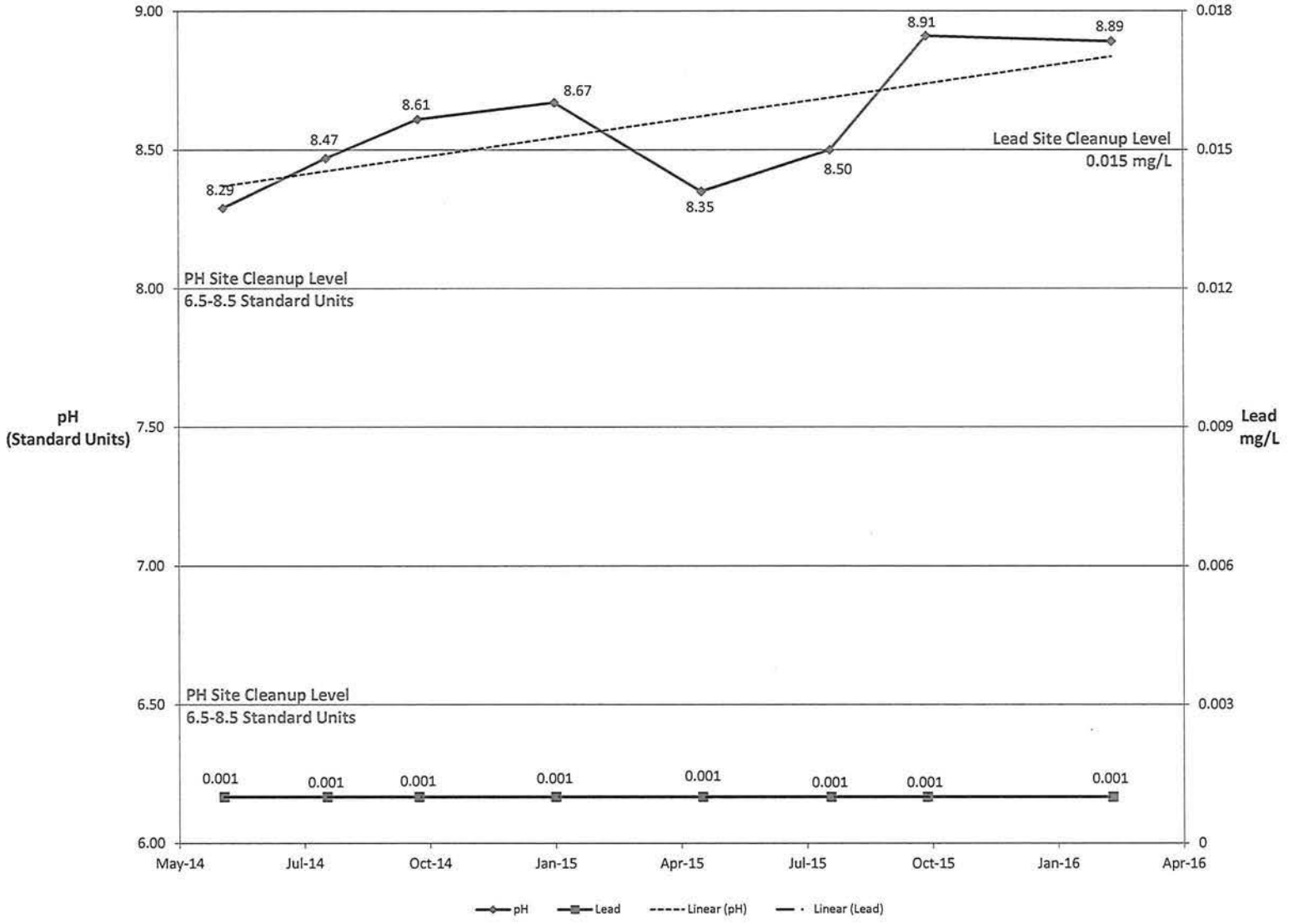

(b) (6) Well pH and Lead
Lead Site Cleanup Level 0.015 mg/L
PH Site Cleanup Level
6.5-8.5 Standard Units
PH Site Cleanup Level
6.5-8.5 Standard Units
pH
(Standard Units)
Lead
mg/L
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
8.22
8.13
8.27
8.24
8.27
8.24
7.80
7.02
0.0011
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
pH
Lead
Linear (pH)
Linear (Lead)

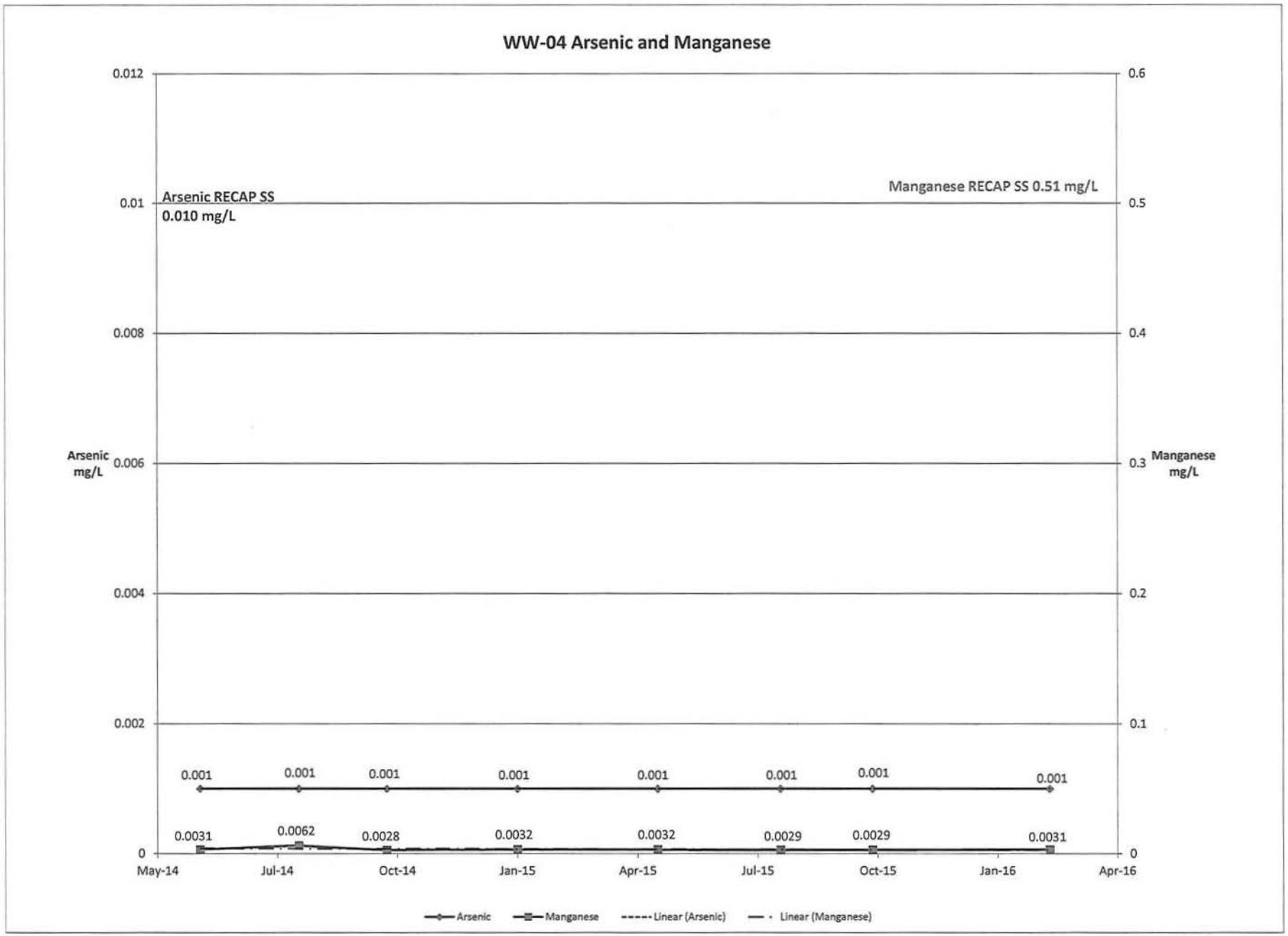

(b) (6) Well Arsenic and Manganese
Arsenic RECAP SS
0.010 mg/L
Manganese RECAP SS 0.51 mg/L
Arsenic mg/L
Manganese mg/L
0.012
0.01
0.008
0.006
0.004
0.002
0
0.6
0.5
0.4
0.3
0.2
0.1
0
0.0015
0.0017
0.0016
0.0015
0.0015
0.0015
0.0016
0.0014
0.0416
0.0243
0.0231
0.0231
0.0231
0.0217
0.0228
0.0227
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Arsenic
Manganese
Linear (Arsenic)
Linear (Manganese)

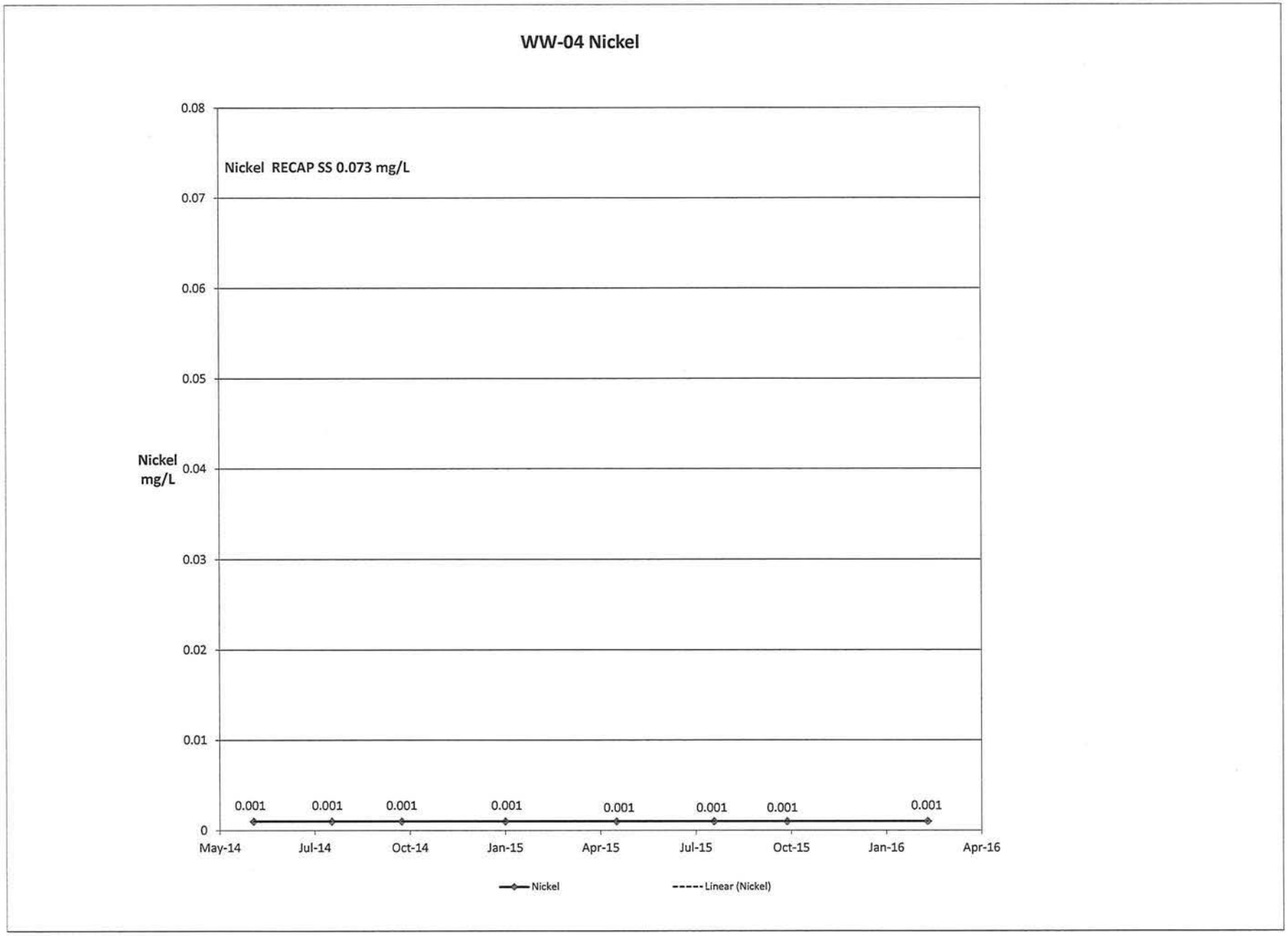

(b) (6) Well Nickel
Nickel RECAP SS 0.073 mg/L
Nickel mg/L
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Nickel
Linear (Nickel)


(b) (6) Well Cadmium and Zinc
Zinc RECAP SS 1.1 mg/L
Cadmium RECAP SS 0.005 mg/L
Cadmium mg/L
Zinc mg/L
0.006
0.005
0.004
0.003
0.002
0.001
0
1.2
1
0.8
0.6
0.4
0.2
0
0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001
0.005 0.0063 0.005 0.005 0.005 0.005 0.005 0.005
May-14 Jul-14 Oct-14 Jan-15 Apr-15 Jul-15 Oct-15 Jan-16 Apr-16
Cadmium
Zinc
Linear (Cadmium)
Linear (Zinc)

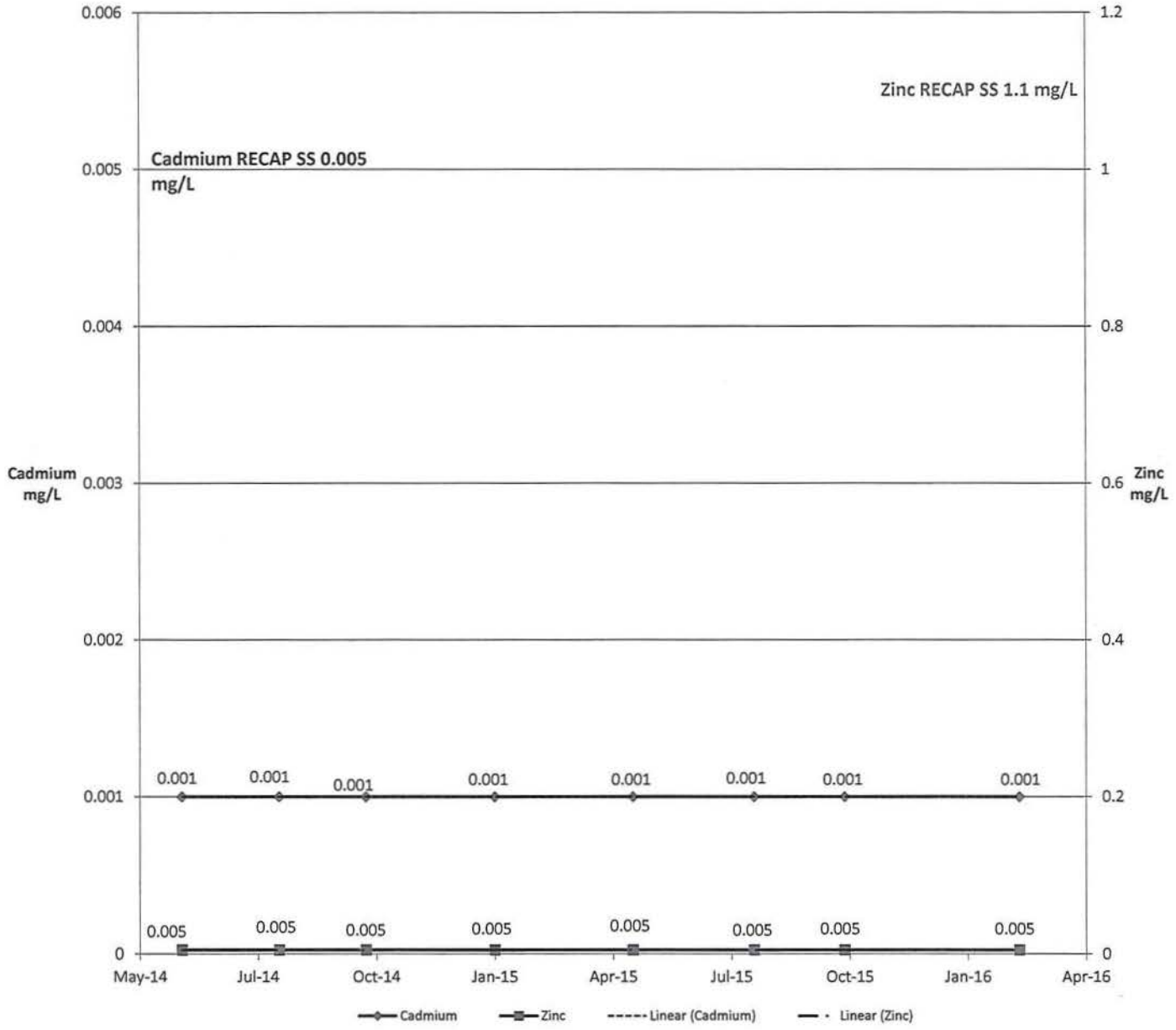
WW-04 pH and Lead

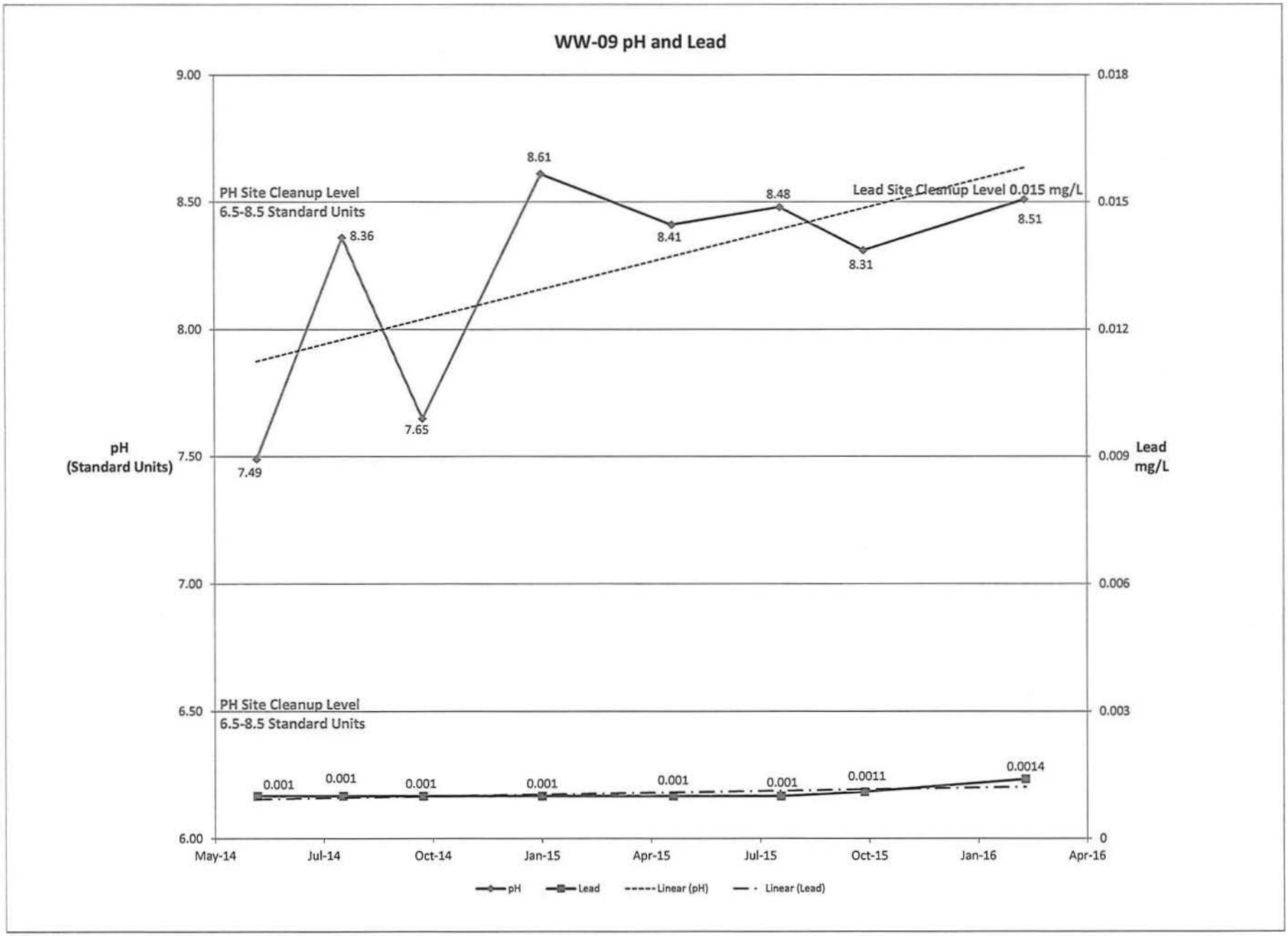


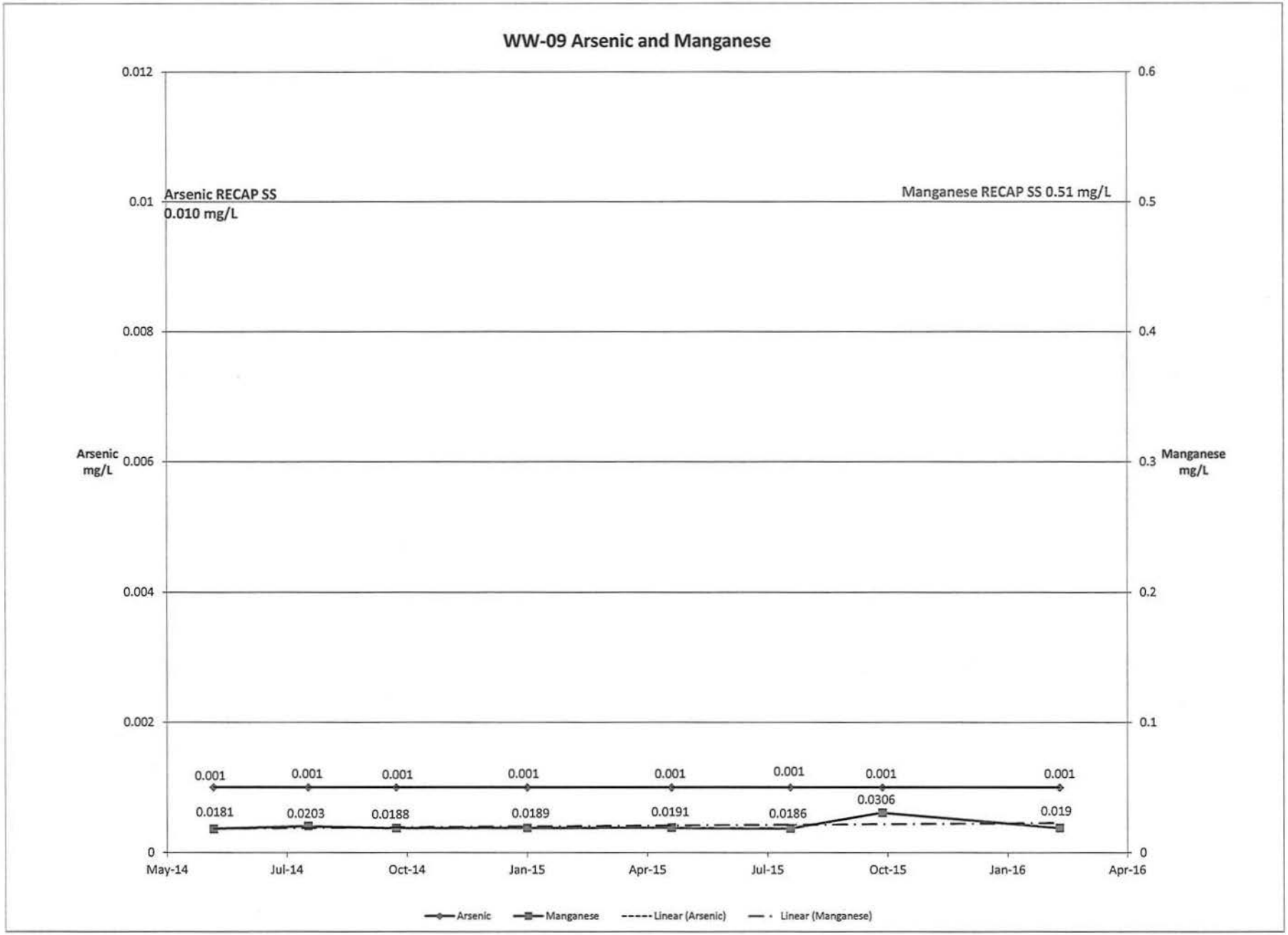

WW-04 Arsenic and Manganese
Arsenic RECAP SS
0.010 mg/L
Manganese RECAP SS 0.51 mg/L
Arsenic mg/L
Manganese mg/L
0.012
0.01
0.008
0.006
0.004
0.002
0
0.6
0.5
0.4
0.3
0.2
0.1
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.0031
0.0062
0.0028
0.0032
0.0032
0.0029
0.0029
0.0031
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Arsenic
Manganese
Linear (Arsenic)
Linear (Manganese)

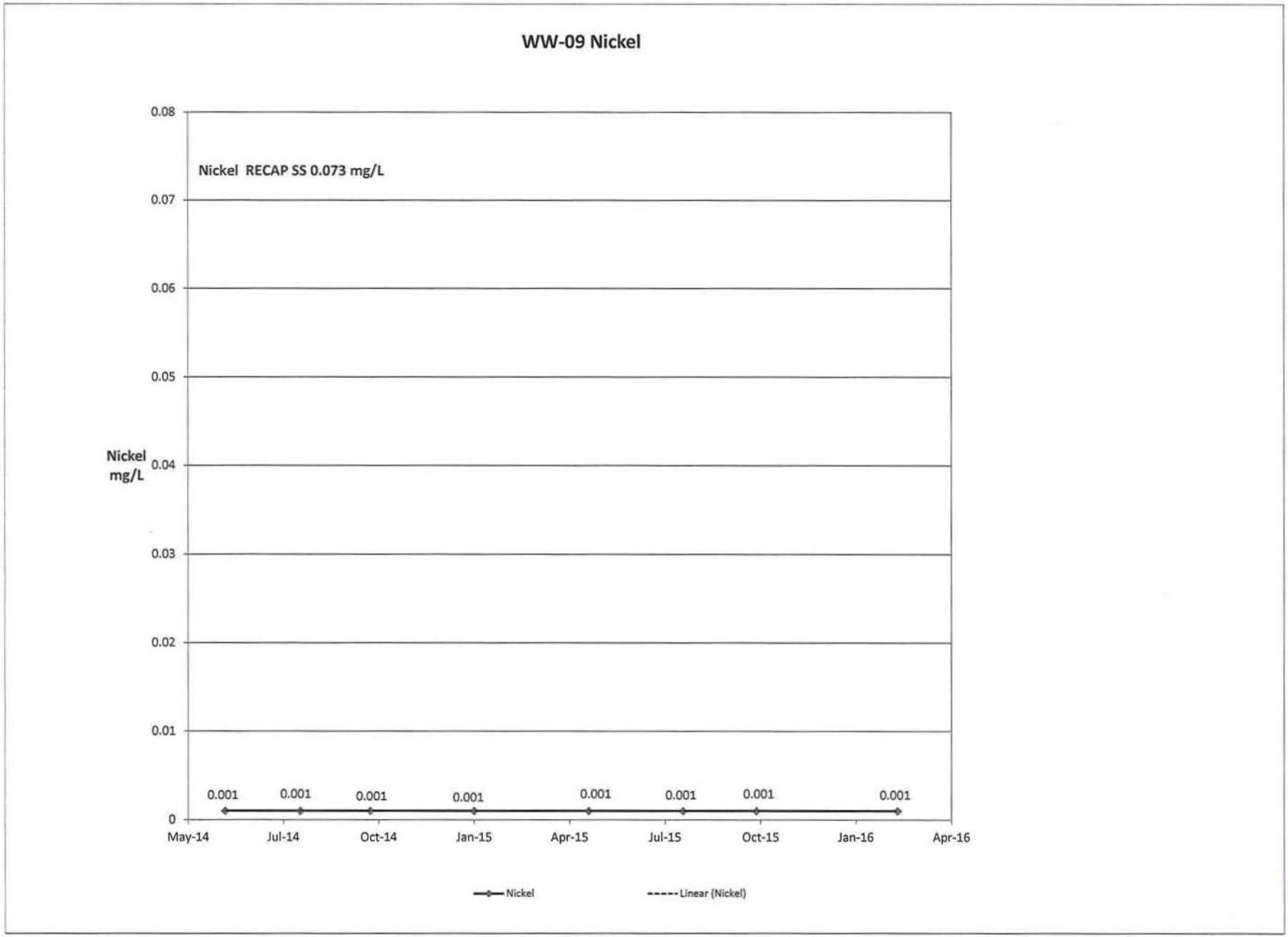

WW-04 Nickel
Nickel RECAP SS 0.073 mg/L
Nickel mg/L
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Nickel
Linear (Nickel)

WW-04 Cadmium and Zinc

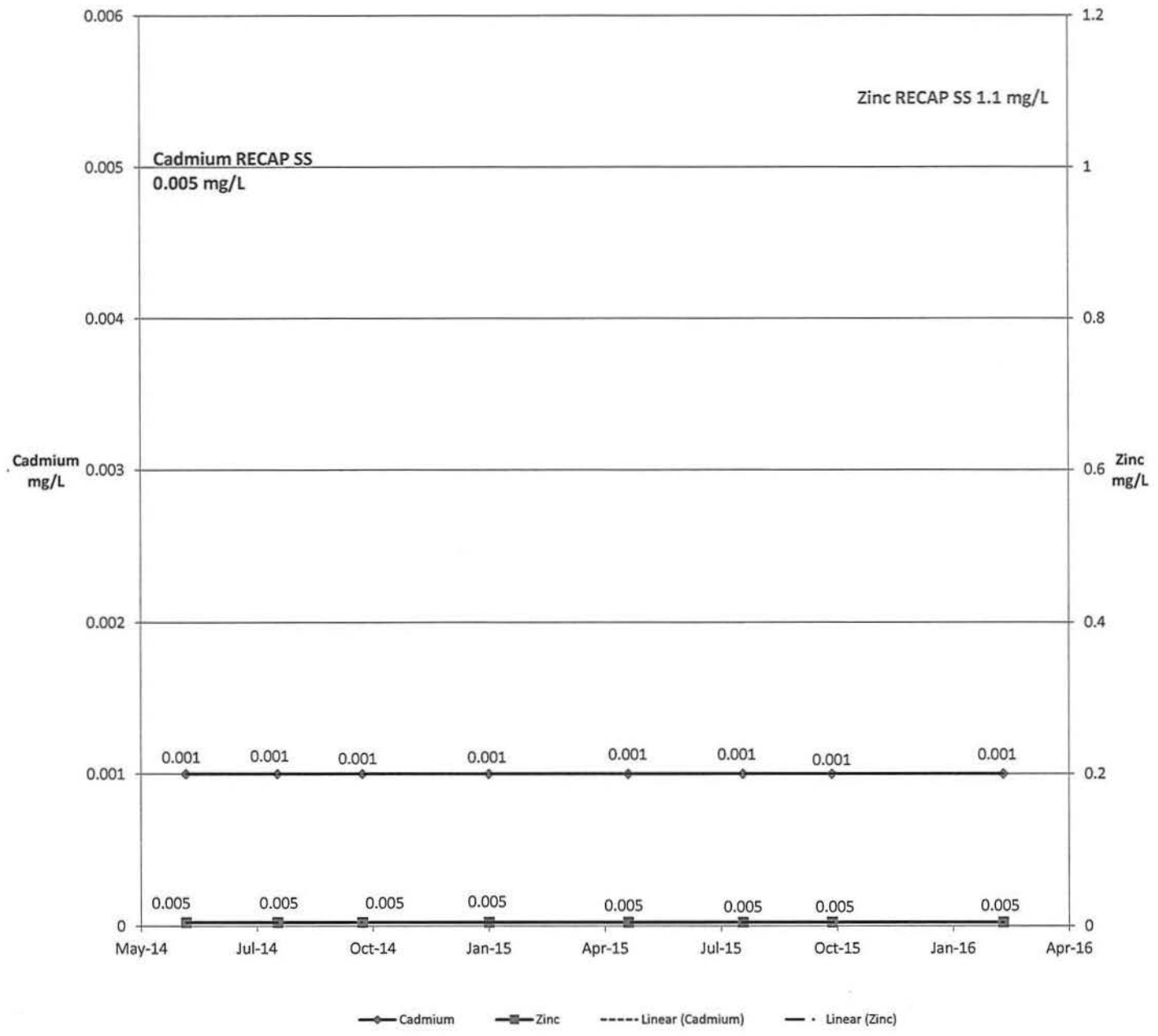


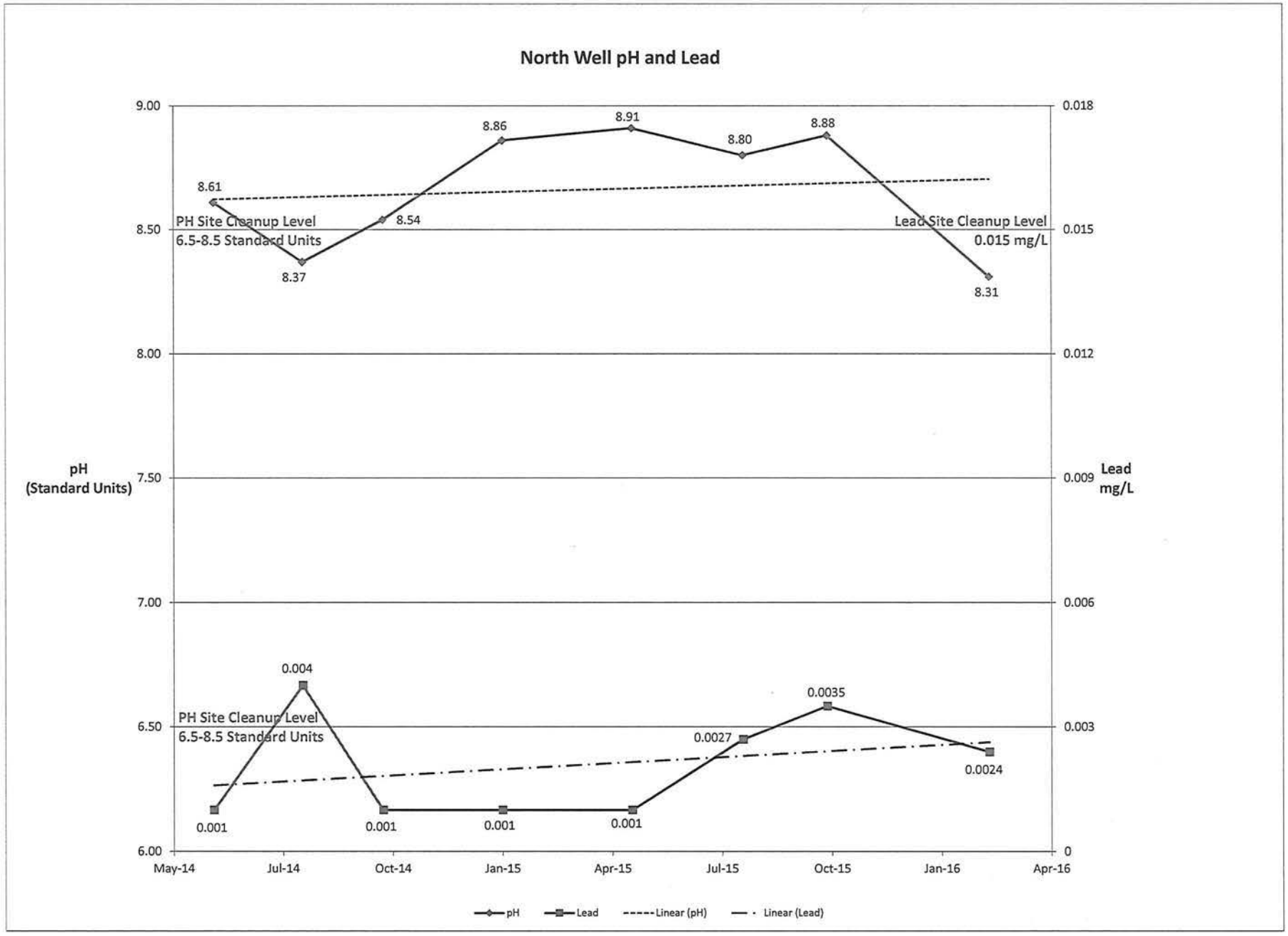

WW-09 pH and Lead
9.00
8.50
8.00
7.50
7.00
6.50
6.00
0.018
0.015
0.012
0.009
0.006
0.003
0
pH
(Standard Units)
Lead
mg/L
PH Site Cleanup Level
6.5-8.5 Standard Units
Lead Site Cleanup Level 0.015 mg/L
7.49
8.36
7.65
8.61
8.41
8.48
8.31
8.51
0.001
0.001
0.001
0.001
0.001
0.001
0.0011
0.0014
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
pH
Lead
Linear (pH)
Linear (Lead)

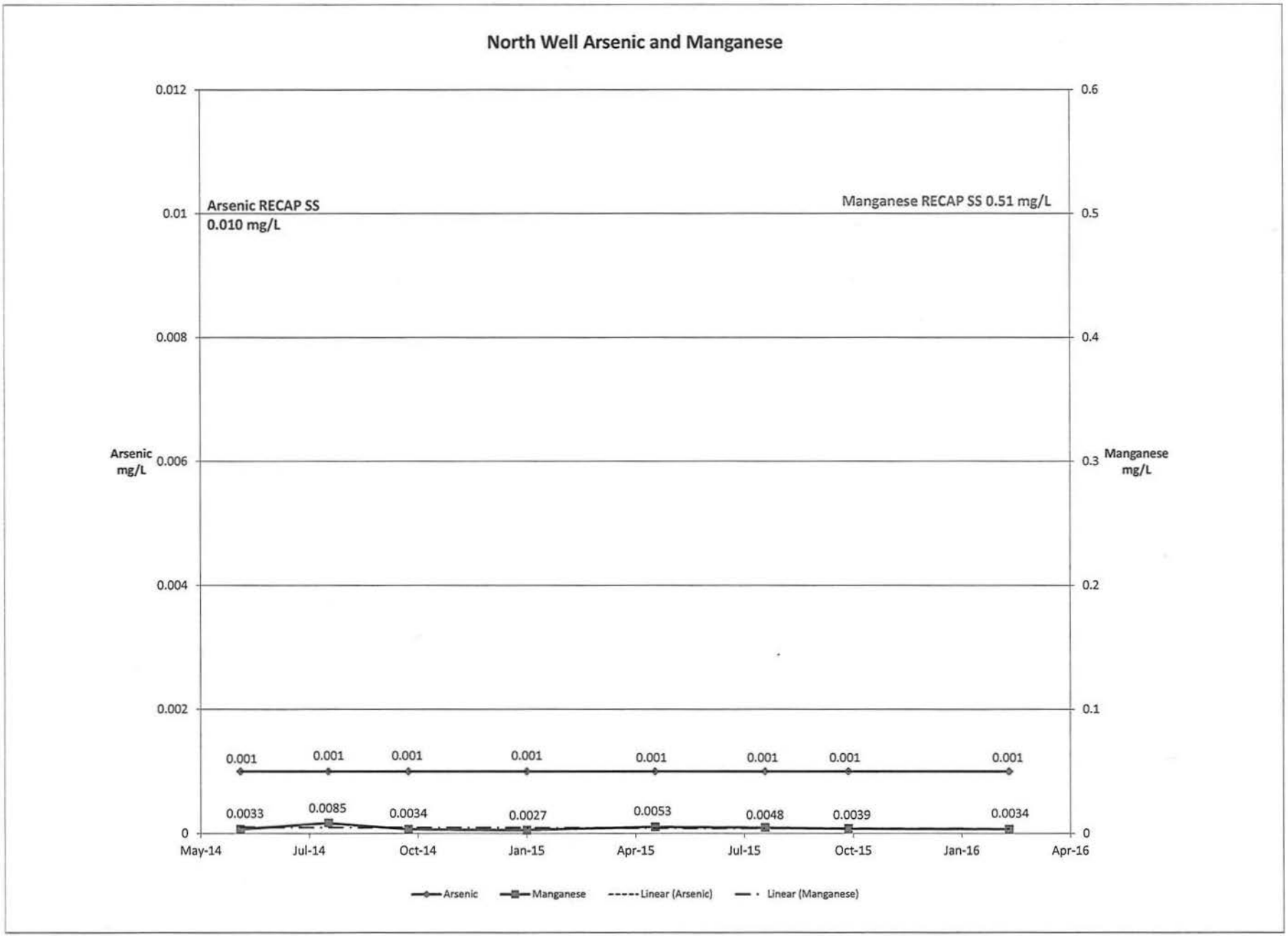

WW-09 Arsenic and Manganese
Arsenic RECAP SS
0.010 mg/L
Manganese RECAP SS 0.51 mg/L
Arsenic mg/L
Manganese mg/L
0.012
0.01
0.008
0.006
0.004
0.002
0
0.6
0.5
0.4
0.3
0.2
0.1
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.0181
0.0203
0.0188
0.0189
0.0191
0.0186
0.0306
0.019
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Arsenic
Manganese
Linear (Arsenic)
Linear (Manganese)

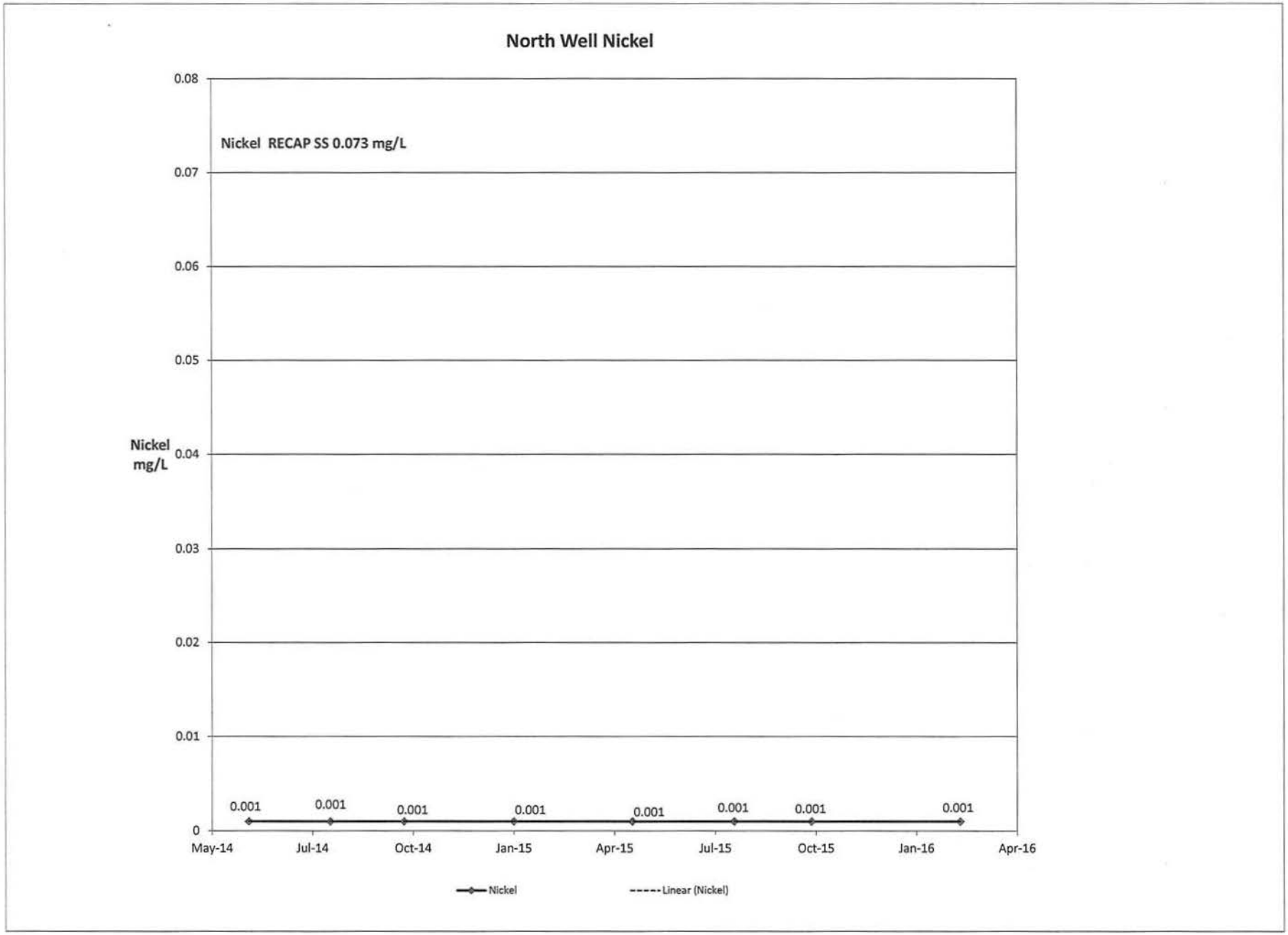

WW-09 Nickel
Nickel RECAP SS 0.073 mg/L
Nickel mg/L
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Nickel
Linear (Nickel)

WW-09 Cadmium and Zinc

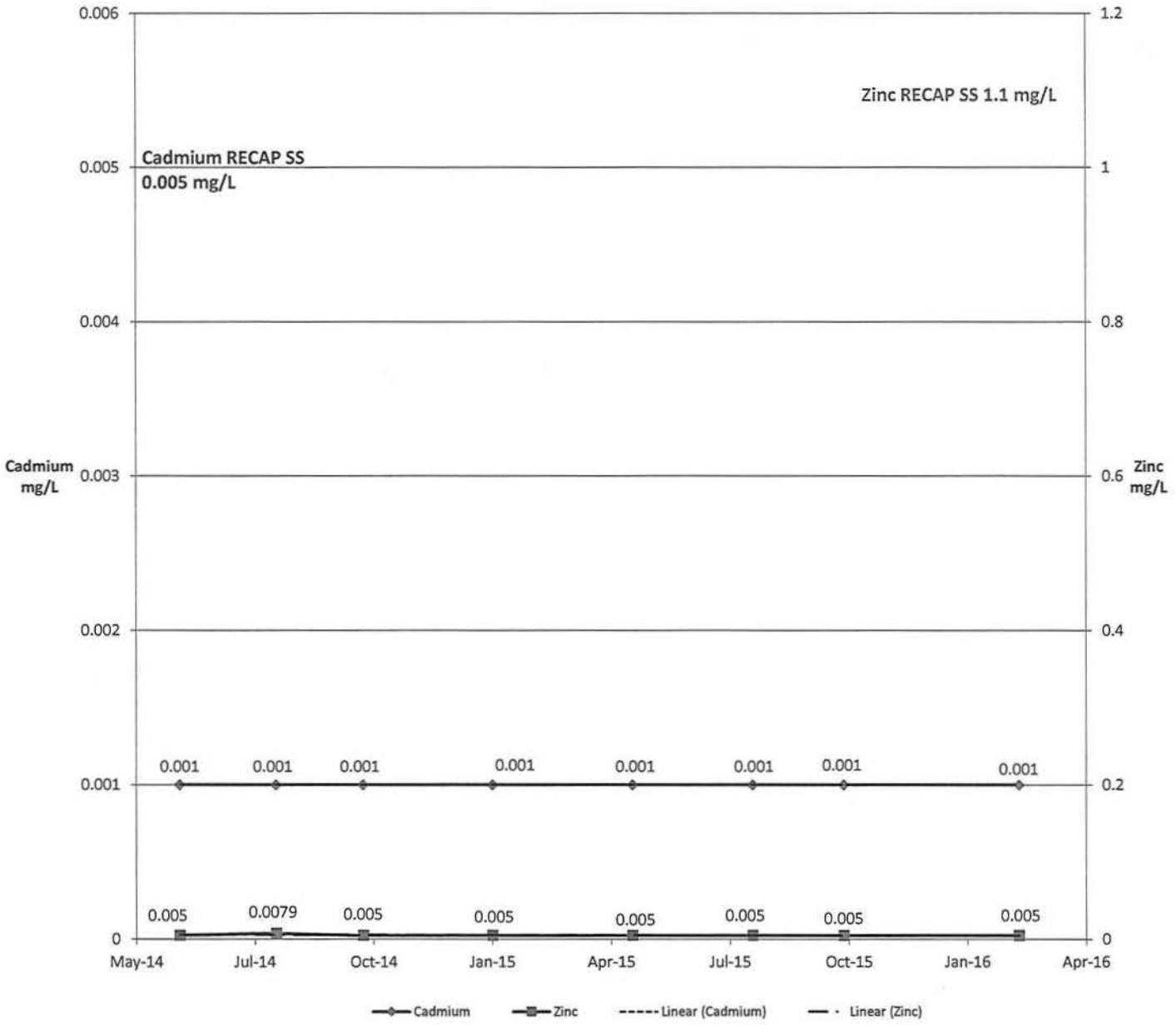


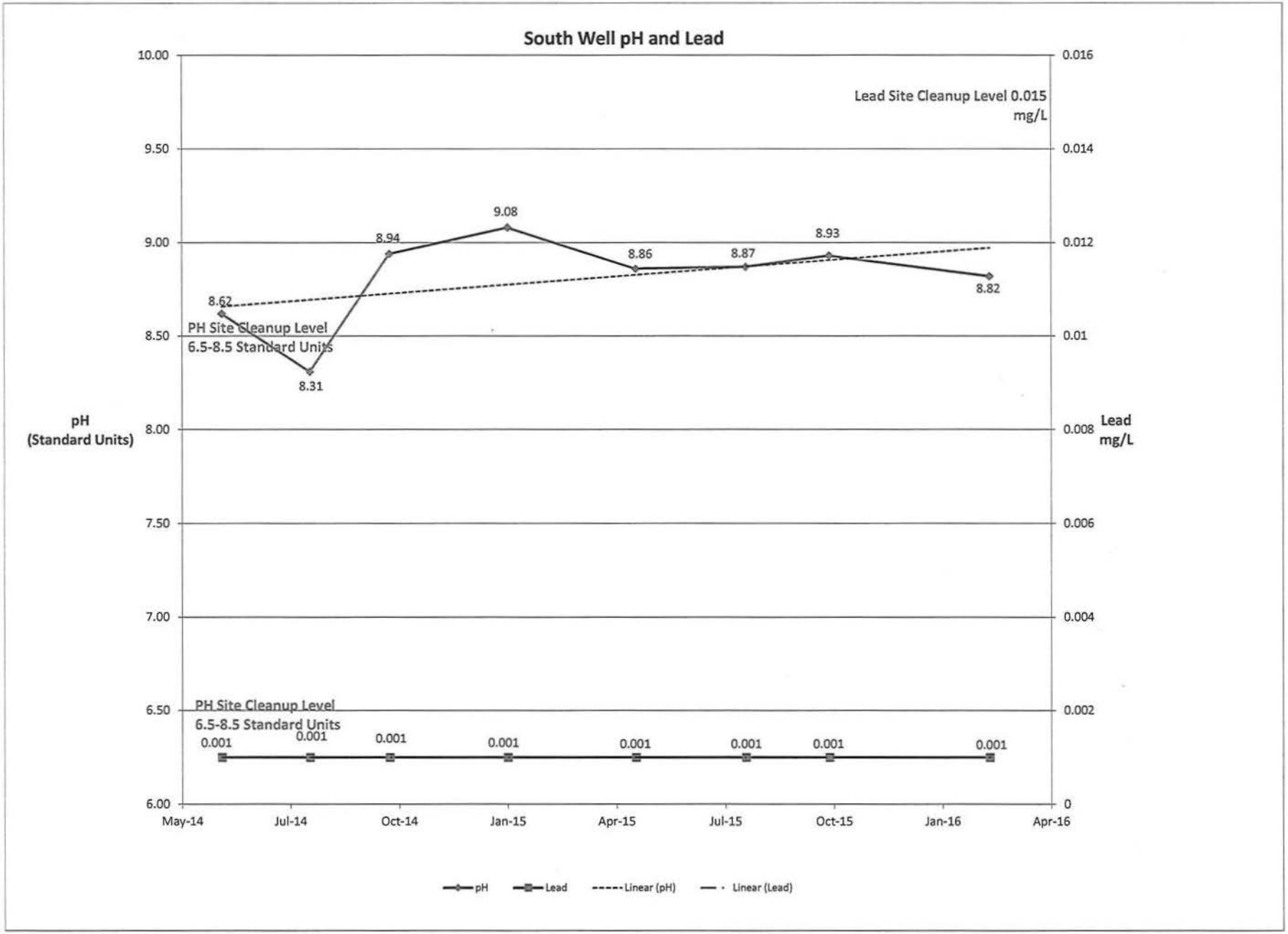

North Well pH and Lead
9.00
8.50
8.00
7.50
7.00
6.50
6.00
pH
(Standard Units)
0.018
0.015
0.012
0.009
0.006
0.003
0
Lead
mg/L
8.61
8.37
8.54
8.86
8.91
8.80
8.88
8.31
PH Site Cleanup Level
6.5-8.5 Standard Units
Lead Site Cleanup Level
0.015 mg/L
0.001
0.004
0.001
0.001
0.001
0.0027
0.0035
0.0024
PH Site Cleanup Level
6.5-8.5 Standard Units
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
pH
Lead
Linear (pH)
Linear (Lead)

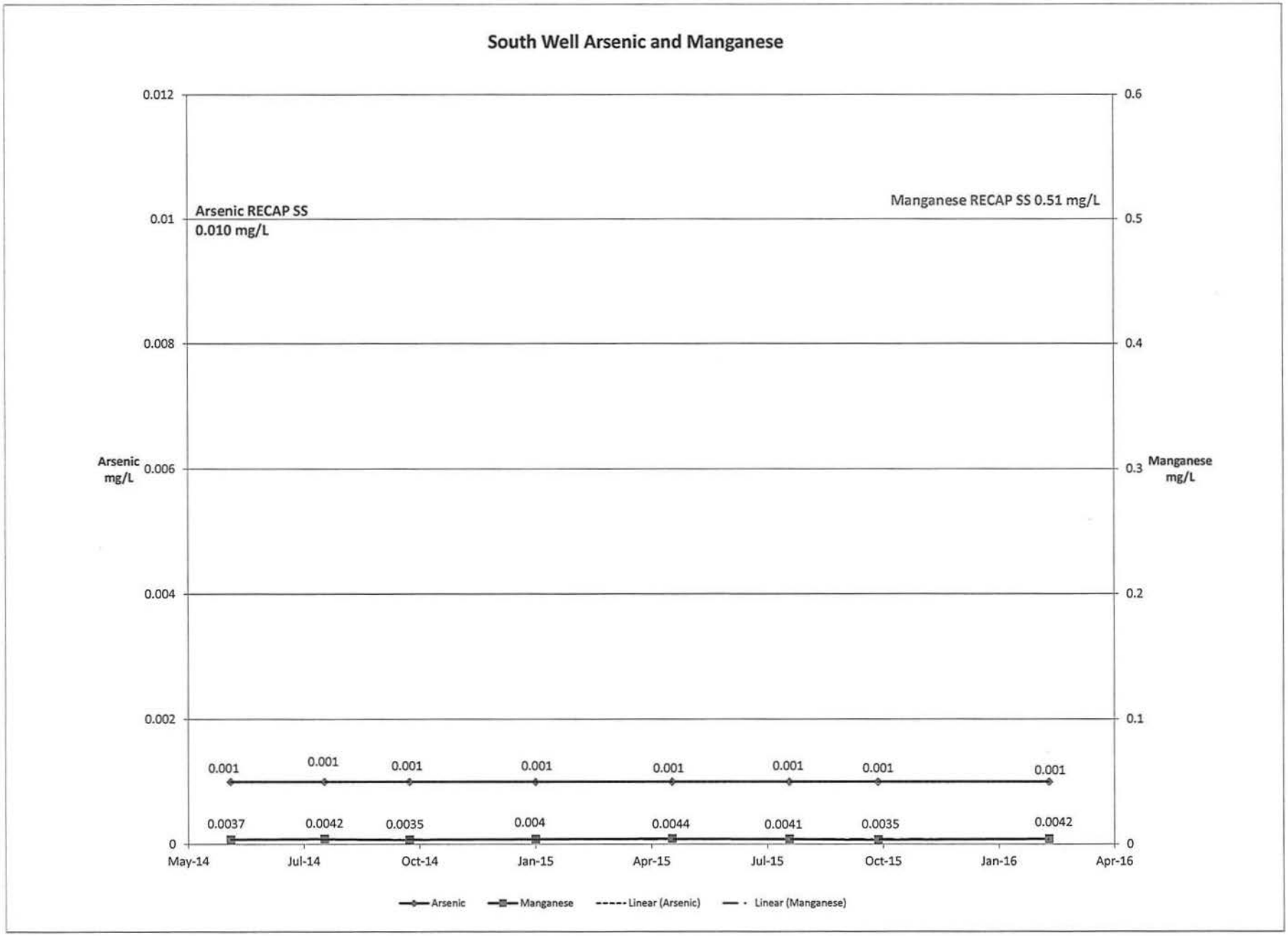

North Well Arsenic and Manganese
0.012
0.01
0.008
0.006
0.004
0.002
0
0.6
0.5
0.4
0.3
0.2
0.1
0
Arsenic RECAP SS
0.010 mg/L
Manganese RECAP SS 0.51 mg/L
Arsenic mg/L
Manganese mg/L
0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001
0.0033 0.0085 0.0034 0.0027 0.0053 0.0048 0.0039 0.0034
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Arsenic
Manganese
Linear (Arsenic)
Linear (Manganese)

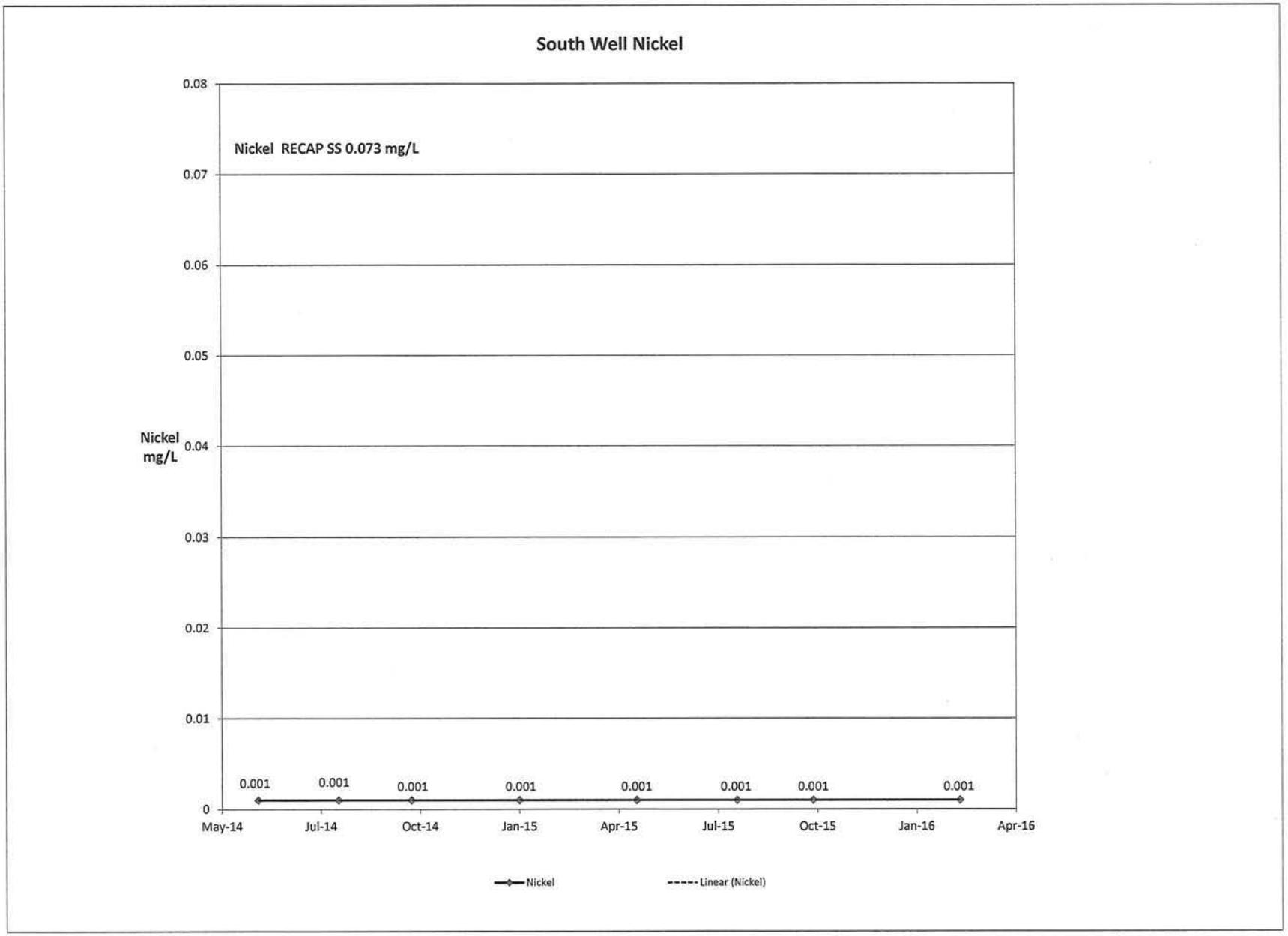

North Well Nickel
Nickel RECAP SS 0.073 mg/L
Nickel mg/L
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Nickel
Linear (Nickel)

North Well Cadmium and Zinc

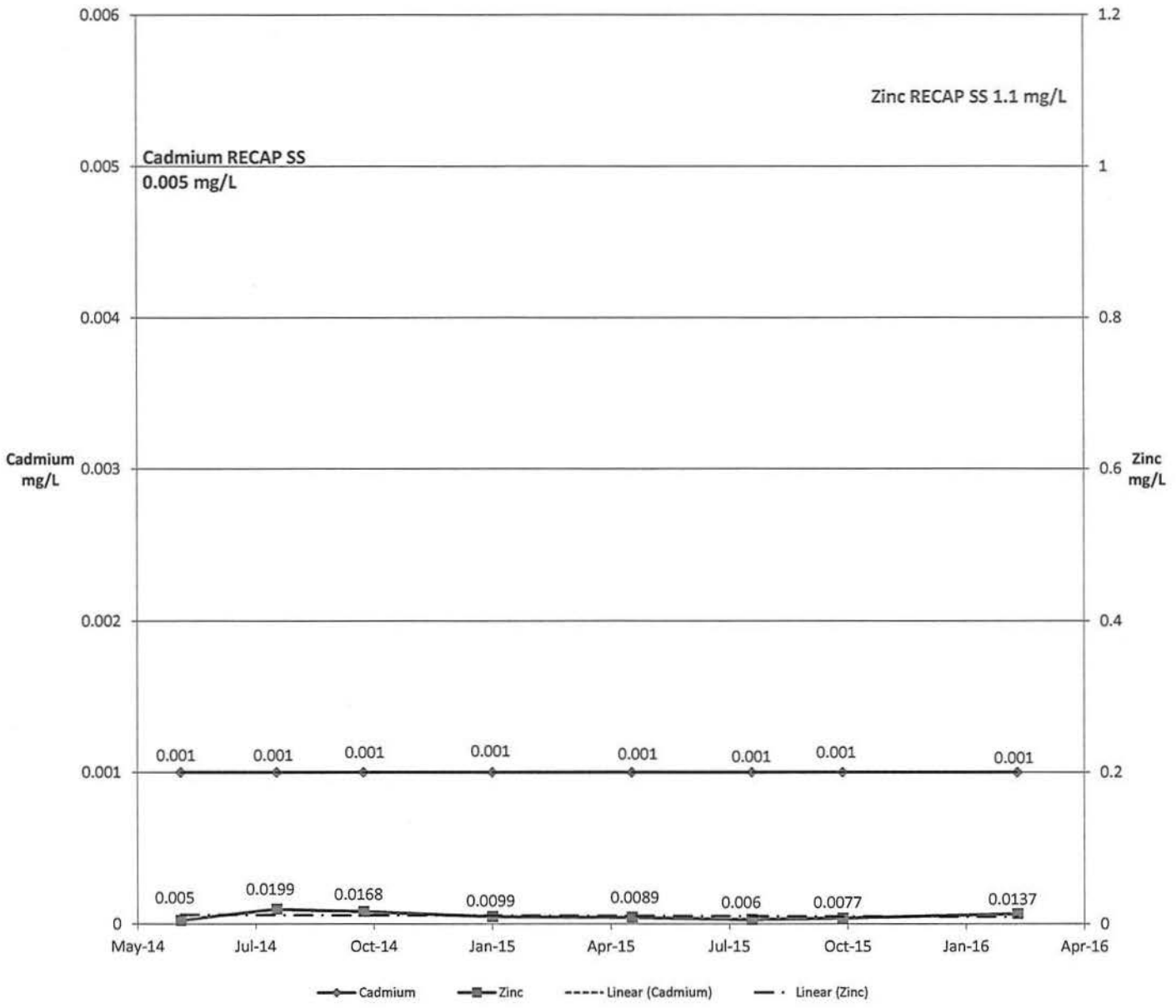



South Well pH and Lead
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
pH (Standard Units)
Lead mg/L
Lead Site Cleanup Level 0.015 mg/L
PH Site Cleanup Level 6.5-8.5 Standard Units
PH Site Cleanup Level 6.5-8.5 Standard Units
8.62
8.31
8.94
9.08
8.86
8.87
8.93
8.82
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
pH
Lead
Linear (pH)
Linear (Lead)


South Well Arsenic and Manganese
0.012
0.01
0.008
0.006
0.004
0.002
0
Arsenic mg/L
0.6
0.5
0.4
0.3
0.2
0.1
0
Manganese mg/L
Arsenic RECAP SS
0.010 mg/L
Manganese RECAP SS 0.51 mg/L
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.0037
0.0042
0.0035
0.004
0.0044
0.0041
0.0035
0.0042
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Arsenic
Manganese
Linear (Arsenic)
Linear (Manganese)

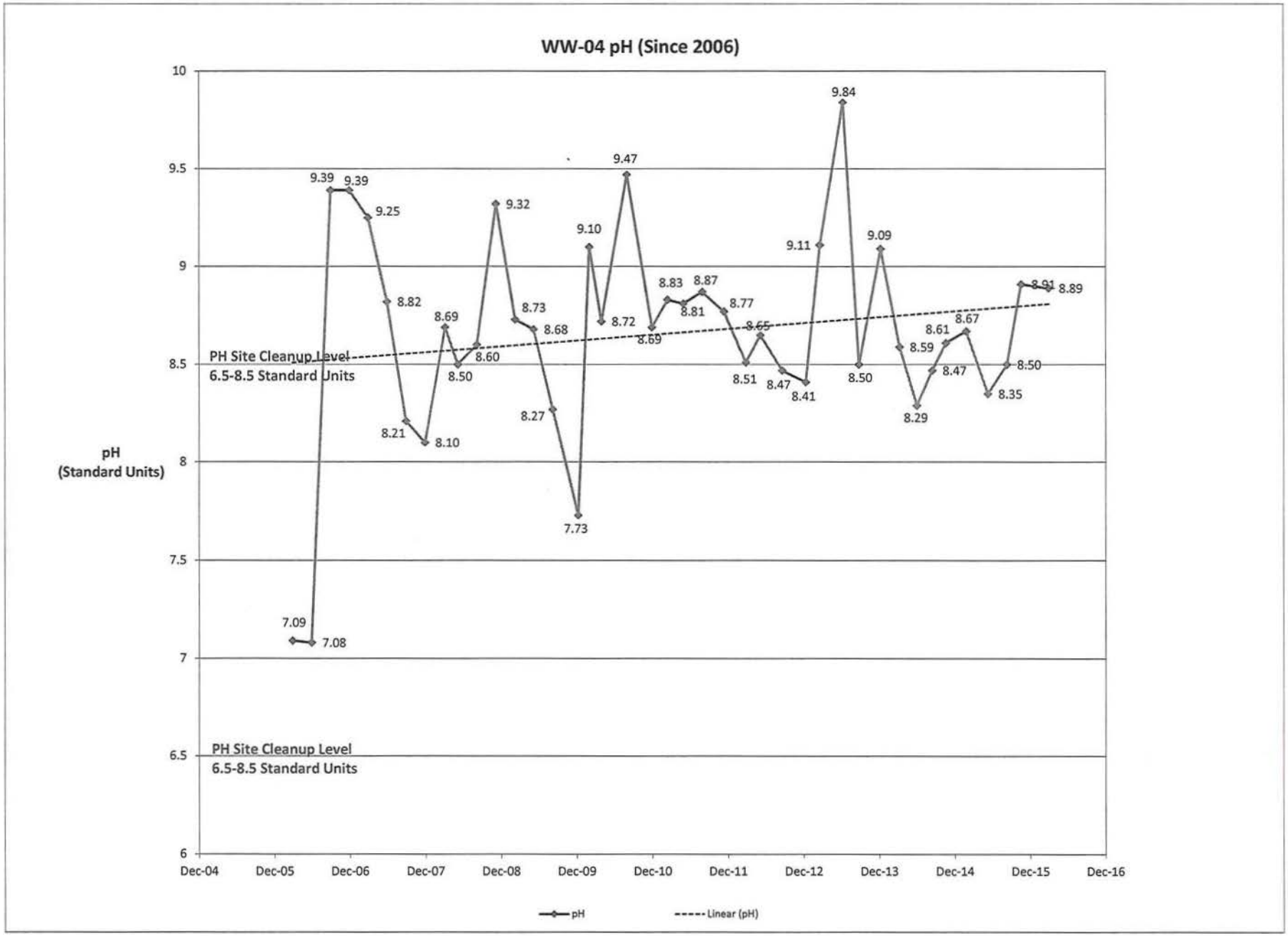

South Well Nickel
Nickel RECAP SS 0.073 mg/L
Nickel mg/L
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0.001
0.001
0.001
0.001
0.001
0.001
0.001
0.001
May-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
Jan-16
Apr-16
Nickel
Linear (Nickel)

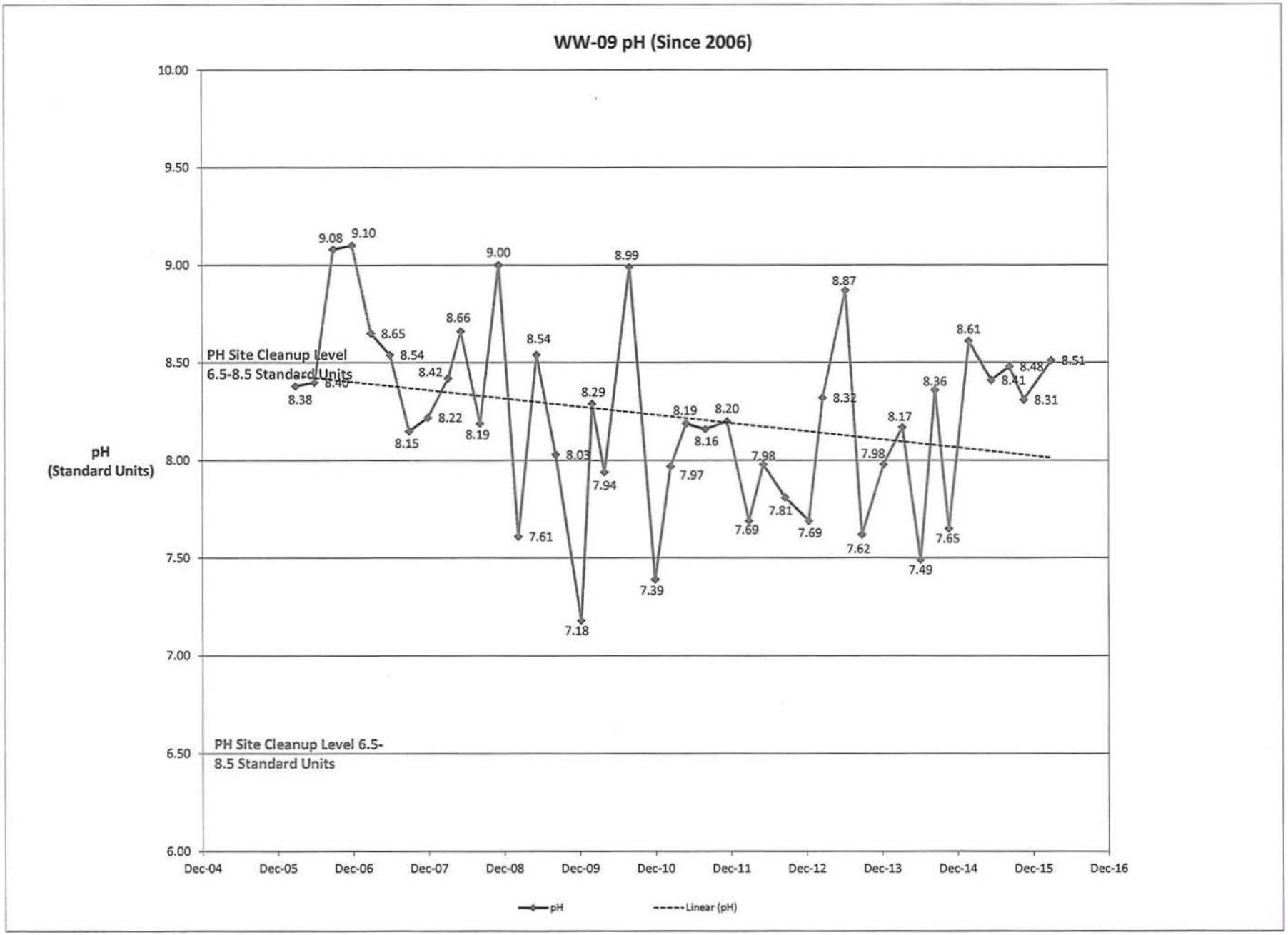
South Well Cadmium and Zinc

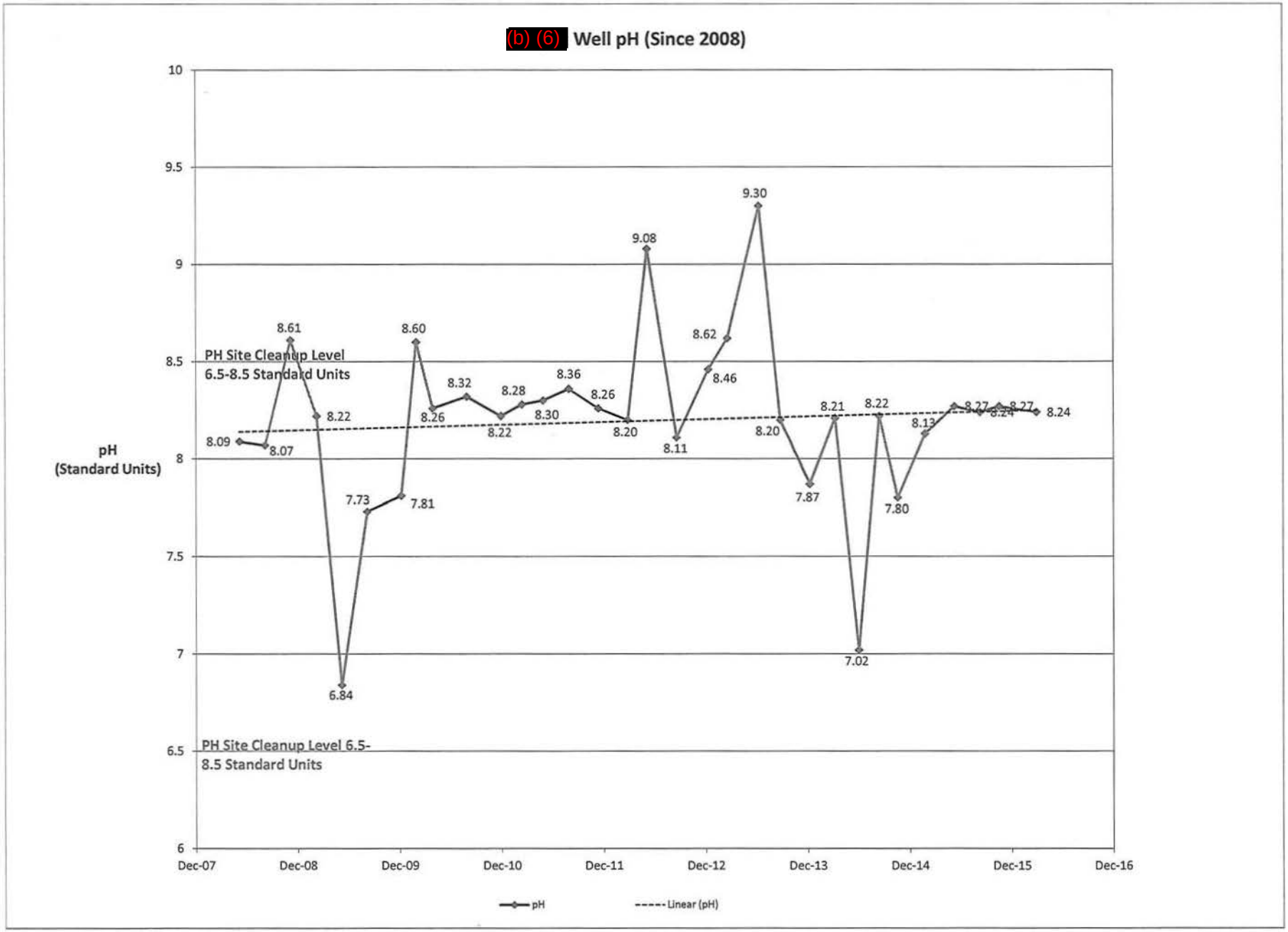


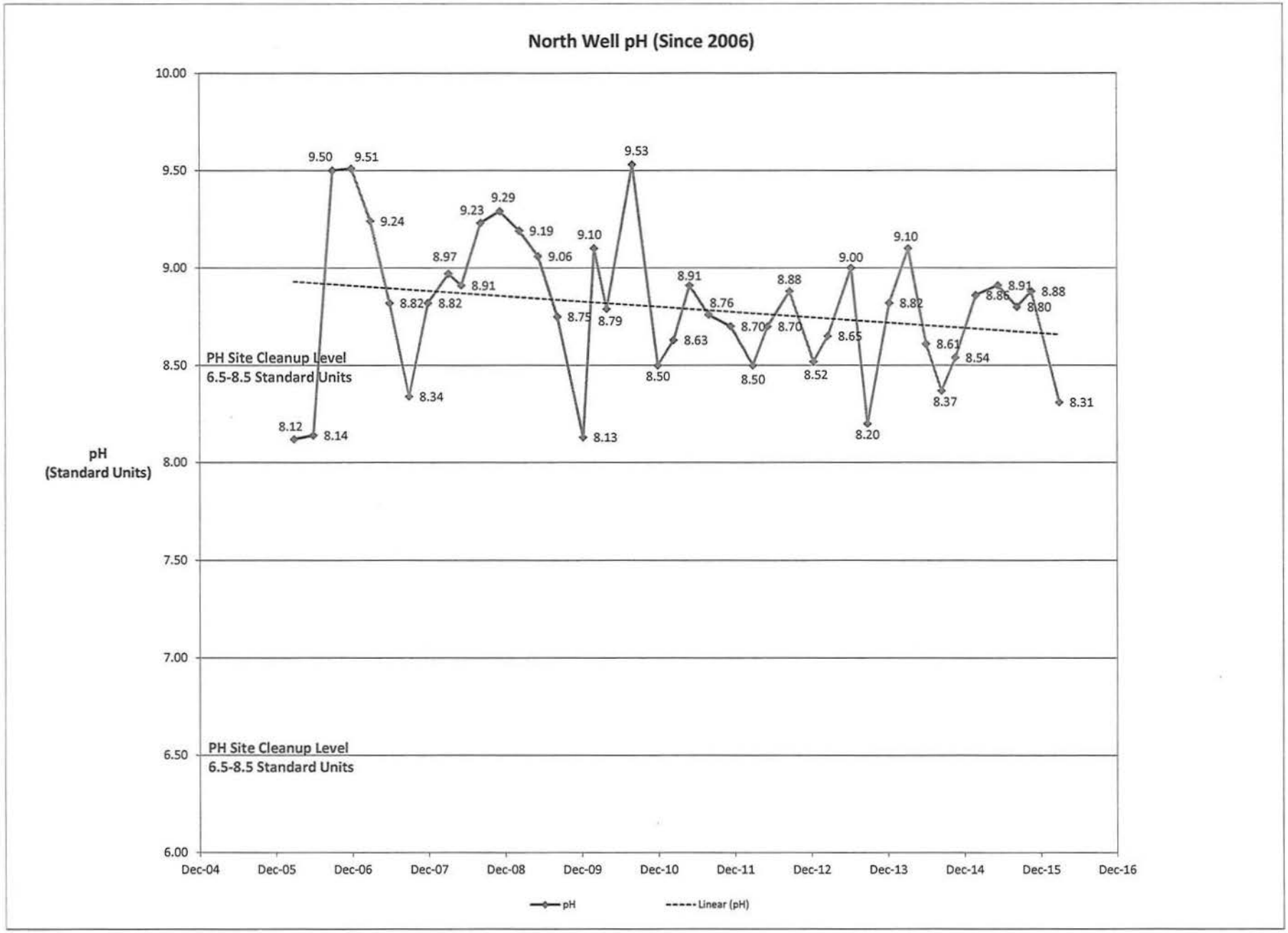
WATER WELLS

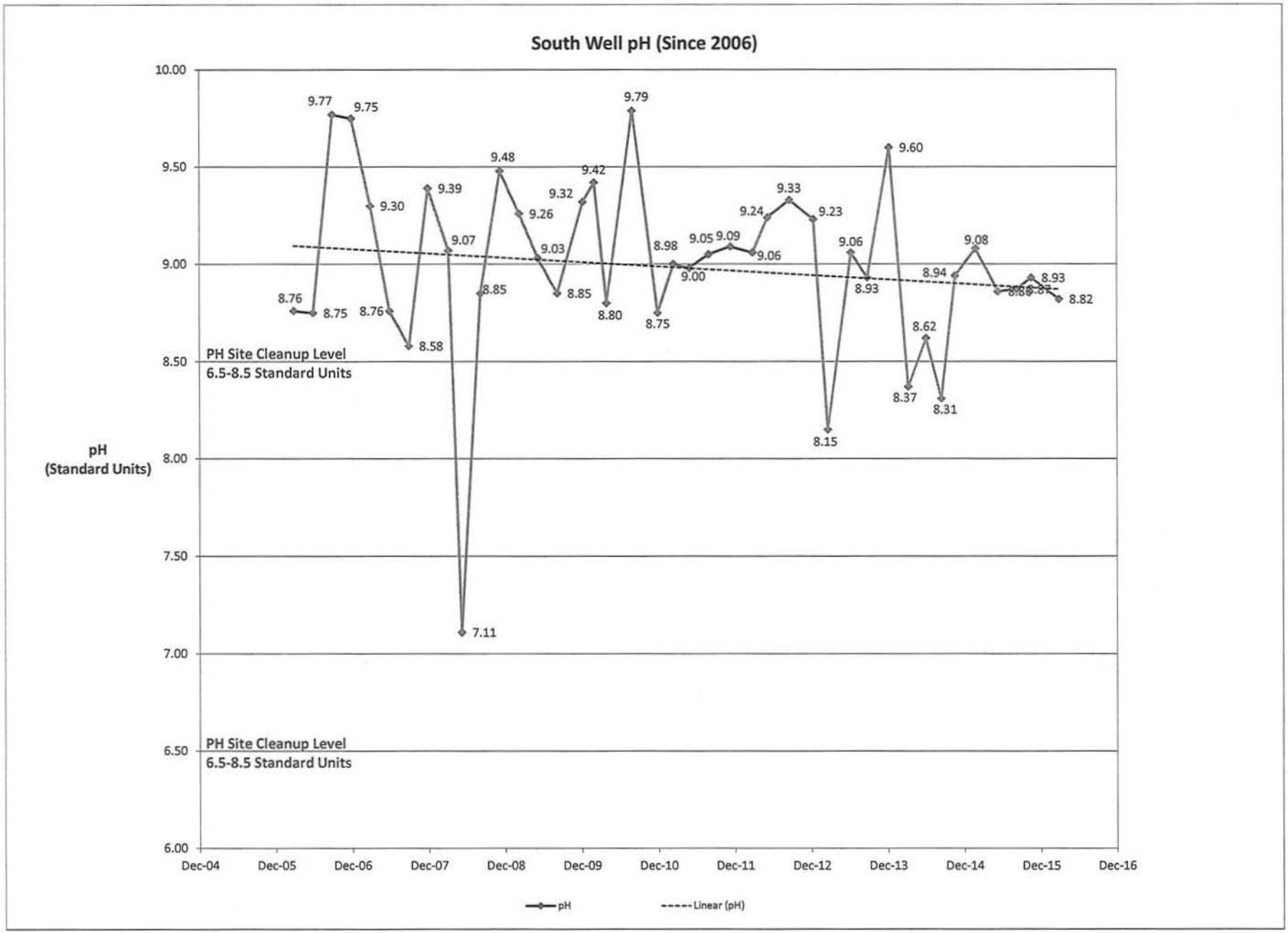
(SINCE 2006)


WW-04 pH (Since 2006)
pH
(Standard Units)
10
9.5
9
8.5
8
7.5
7
6.5
6
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
PH Site Cleanup Level
6.5-8.5 Standard Units
PH Site Cleanup Level
6.5-8.5 Standard Units
7.09
7.08
9.39
9.39
9.25
8.82
8.21
8.10
8.69
8.50
8.60
9.32
8.73
8.68
8.27
7.73
9.10
9.47
8.72
8.69
8.83
8.81
8.87
8.77
8.65
8.51
8.47
8.41
9.11
9.84
8.50
9.09
8.59
8.29
8.61
8.47
8.67
8.35
8.50
8.91
8.89
pH
Linear (pH)


WW-09 pH (Since 2006)
pH (Standard Units)
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
PH Site Cleanup Level 6.5-8.5 Standard Units
PH Site Cleanup Level 6.5-8.5 Standard Units
8.38
8.40
9.08
9.10
8.65
8.54
8.15
8.22
8.42
8.66
8.19
9.00
7.61
8.54
8.03
7.18
8.29
7.94
8.99
7.39
7.97
8.19
8.16
8.20
7.69
7.98
7.81
7.69
8.87
7.62
8.32
7.98
8.17
7.49
8.36
7.65
8.61
8.41
8.48
8.31
8.51
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
pH
Linear (pH)


(b) (6) Well pH (Since 2008)
pH
(Standard Units)
PH Site Cleanup Level
6.5-8.5 Standard Units
PH Site Cleanup Level 6.5-
8.5 Standard Units
10
9.5
9
8.5
8
7.5
7
6.5
6
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
8.09
8.07
8.61
8.22
6.84
7.73
7.81
8.60
8.26
8.32
8.22
8.28
8.30
8.36
8.26
8.20
9.08
8.11
8.62
8.46
9.30
8.20
7.87
8.21
7.02
8.22
7.80
8.13
8.27
8.24
8.27
8.24
pH
Linear (pH)


North Well pH (Since 2006)
pH
(Standard Units)
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
PH Site Cleanup Level
6.5-8.5 Standard Units
PH Site Cleanup Level
6.5-8.5 Standard Units
9.50
9.51
9.24
8.82
8.34
8.12
8.14
8.82
8.97
8.91
9.23
9.29
9.19
9.06
8.75
9.10
8.79
8.13
9.53
8.50
8.63
8.91
8.76
8.70
8.50
8.70
8.88
8.52
8.65
9.00
8.20
8.82
9.10
8.61
8.37
8.54
8.86
8.91
8.80
8.88
8.31
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
pH
Linear (pH)


South Well pH (Since 2006)
pH (Standard Units)
10.00
9.50
9.00
8.50
8.00
7.50
7.00
6.50
6.00
PH Site Cleanup Level
6.5-8.5 Standard Units
PH Site Cleanup Level
6.5-8.5 Standard Units
9.77
9.75
9.30
9.39
9.07
9.48
9.26
9.03
9.32
9.42
9.79
8.98
9.05
9.09
9.06
9.24
9.33
9.23
9.06
9.60
9.08
8.94
8.93
8.82
8.76
8.75
8.76
8.58
8.85
8.85
8.80
8.75
9.00
8.93
8.37
8.62
8.31
8.15
7.11
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
pH
Linear (pH)

ATTACHMENT D

DATA VALIDATION PACKAGE

Data Validation Report

Client: SEMS, Inc.

Project: Delatte Metals

SDG: 2033118 Date: April 4, 2016

eDATApro

Environmental Data Professional, LLC
1432 Watkins Street • Lake Charles, LA 70601 • phone: 337-540-0036 • fax: 337-478-6061

Disclaimer:

The validation performed and reported herein is based on specifications and procedures presented to eDATApro with the associated data package. Any qualifications or review not specified with package requirements was based on USEPA National Functional Guidelines for Inorganic and Organic Data Review.

Information contained in this report is based solely on the hardcopy and/or electronic deliverables that were submitted to eDATApro. eDATApro reserves the rights to modify or change the validation report if new information is presented or if this report is determined to be inaccurate or incomplete.

eDATApro

Cover Letter

Validation Report Date: April 4, 2016

Sample Delivery Group: 2033118

Project Name: Delatte Metals

Data Deliverables Included:

Validation Report:

- ✓ Introduction
- ✓ Sample Identification Cross- Reference Table
- ✓ Data Validation Components
- ✓ Data Validation Findings Summary
- ✓ Table 1-1, Summary of Qualified Data
- ✓ Table 1-2, Data Qualifier Reference Table
- ✓ Appendix I, Form I Data (qualified)
- ✓ Appendix II, Chain of Custody

Approval Signature: Anthony Fluhon Date: April 4, 2016

INTRODUCTION:

SDG: 2033118
Project Name: Delatte Metals
Laboratory: Pace Analytical
Laboratory Package No.: 2033118
Matrix: Water

Environmental Data Professional, LLC (eDATApro) received one data package containing the results for five field samples and one field duplicate. Data validation was performed according to guidance from *USEPA National Functional Guidelines for Inorganic Data Review,* the project-specific Quality Assurance Project Plan and the analytical method.

The following samples were reviewed:

Sample ID	Lab ID	Collection Date	Analyses
WW-04	2033118001	02/29/2016 02:15 PM	[1]
WW-09	2033118002	02/29/2016 02:38 PM	[1]
(b) (6) Well	2033118003	02/29/2016 02:07 PM	[1]
North Well	2033118004	02/29/2016 01:15 PM	[1]
South Well	2033118005	02/29/2016 01:38 PM	[1]
Duplicate	2033118006	02/29/2016	[1]

Analyses Performed Codes:

[1] ICP/MS Metals (EPA 6020); As, Cd, Pb, Mn, Ni, Zn

DATA VALIDATION COMPONENTS

The data presented in this validation report was reviewed using a systematic process for evaluating performance and compliance of a set of data when compared to a set of standards to ascertain its completeness, correctness, and consistency using the methods and/or project defined criteria. The following components, as applicable to each analytical method, were reviewed in conducting the data validation:

- Data Completeness and Deliverables
- Sample Receipt (Chain of Custody Record)
  - Sample ID
  - Collection Date/Time
  - Matrix
  - Analysis Requests
- Chemical/Temperature Preservation
- Holding Times
- Analytical/Method Performance
  - Instrument Performance Checks
  - Instrument Calibrations
    - § Stability of Analyte Response (Average Response Factor)
    - § Linearity of Analytical Response (Correlation Coefficient)
    - § Initial Calibration (multi-point)
    - § Calibration Verification
  - Method Quality Control
    - § Instrument/Method Blank
    - § Laboratory Control Sample
    - § Laboratory Duplicate/Replicate
    - § Surrogates
    - § Internal Standards
    - § Interference Check Sample
    - § ICP Serial Dilution
  - Preparation Batch Quality Control
    - § Preparation Blank
    - § Laboratory Control Sample
    - § Matrix Spikes
- Field Quality Controls
  - Field Duplicate
  - Field/Equipment Rinsate/Trip Blanks
- Compound Identification and Quantitation

Unless specifically stated otherwise in the method summary sections of this report, all components evaluated and data presented by the laboratory met the applicable acceptance criteria and are considered fully usable.

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DATA VALIDATION FINDINGS SUMMARY

I. General Package:

A laboratory data package compliant for Level IV data validation was received on March 17, 2016. No resubmissions were necessary.

The (b) (6) Well sample was incorrectly identified by the laboratory. The sample ID was corrected during validation to match the chain-of-custody (COC).

II. Method 6020 – ICP/MS Metals:

Nickel was not identified on the COC as an analyte of interest; however, the laboratory reported this analyte based on project requirements.

Arsenic was present at an estimate concentration in a continuing calibration blank (CCB) bracketing the analyses of samples from this SDG. The concentration of Arsenic in the (b) (6) Well sample was significantly greater than the blank contamination. Arsenic was not detected in the other samples. No data qualifications were necessary.

All other quality assurance and quality control (QA/QC) components presented by the laboratory satisfied method and data review acceptance criteria.

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Table 1-1

SUMMARY OF QUALIFIED DATA

No data qualifiers were applied.

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Table 1-2

DATA QUALIFIER REFERENCE

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The associated value is an estimated quantity.
J-	The result is an estimated quantity, but the result may be biased low.
J+	The result is an estimated quantity, but the result may be biased high.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.

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Appendix I
Form 1 Data (Qualified)

Form 1 Data Sheet - Metals

SEMS

DELATTE METALS

SDG: 2033118

COC Sample ID: **WW-04** Sample Matrix : **Water**

Location ID: **NA**

Lab Sample ID: **2033118001** Lab Code: **PACE**

Sample Type: **Site Sample**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016 14:15	03/09/2016 15:14	1	1	1	U	1	U	ug/L
Cadmium	02/29/2016 14:15	03/09/2016 15:14	1	1	1	U	1	U	ug/L
Lead	02/29/2016 14:15	03/09/2016 15:14	1	1	1	U	1	U	ug/L
Manganese	02/29/2016 14:15	03/09/2016 15:14	1	1	3.1		3.1		ug/L
Nickel	02/29/2016 14:15	03/09/2016 15:14	1	1	1	U	1	U	ug/L
Zinc	02/29/2016 14:15	03/09/2016 15:14	1	5	5	U	5	U	ug/L

DF = Dilution Factor RL = Reporting Limit

* = Modified by Validation

U = Non-Detect J = Estimated R = Rejected

eDATApro

Form 1 Data Sheet - Metals

SEMS
DELATTE METALS
SDG: 2033118

COC Sample ID: **WW-09** Sample Matrix : **Water**
Location ID: **NA**
Lab Sample ID: **2033118002** Lab Code: **PACE**
Sample Type: **Site Sample**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016 14:38	03/09/2016 15:18	1	1	1	U	1	U	ug/L
Cadmium	02/29/2016 14:38	03/09/2016 15:18	1	1	1	U	1	U	ug/L
Lead	02/29/2016 14:38	03/09/2016 15:18	1	1	1.4		1.4		ug/L
Manganese	02/29/2016 14:38	03/09/2016 15:18	1	1	19		19		ug/L
Nickel	02/29/2016 14:38	03/09/2016 15:18	1	1	1	U	1	U	ug/L
Zinc	02/29/2016 14:38	03/09/2016 15:18	1	5	5	U	5	U	ug/L

DF = Dilution Factor RL = Reporting Limit
* = Modified by Validation
U = Non-Detect J = Estimated R = Rejected

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Form 1 Data Sheet - Metals

SEMS
DELATTE METALS
SDG: 2033118

COC Sample ID: (b) (6) **WELL** Sample Matrix : **Water**
Location ID: **NA**
Lab Sample ID: **2033118003** Lab Code: **PACE**
Sample Type: **Site Sample**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016 14:07	03/09/2016 15:29	1	1	1.4		1.4		ug/L
Cadmium	02/29/2016 14:07	03/09/2016 15:29	1	1	1	U	1	U	ug/L
Lead	02/29/2016 14:07	03/09/2016 15:29	1	1	1	U	1	U	ug/L
Manganese	02/29/2016 14:07	03/09/2016 15:29	1	1	22.7		22.7		ug/L
Nickel	02/29/2016 14:07	03/09/2016 15:29	1	1	1	U	1	U	ug/L
Zinc	02/29/2016 14:07	03/09/2016 15:29	1	5	5	U	5	U	ug/L

DF = Dilution Factor RL = Reporting Limit
* = Modified by Validation
U = Non-Detect J = Estimated R = Rejected

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Form 1 Data Sheet - Metals

SEMS

DELATTE METALS

SDG: 2033118

COC Sample ID: **NORTH WELL** Sample Matrix : **Water**

Location ID: **NA**

Lab Sample ID: **2033118004** Lab Code: **PACE**

Sample Type: **Site Sample**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016 13:15	03/09/2016 15:33	1	1	1	U	1	U	ug/L
Cadmium	02/29/2016 13:15	03/09/2016 15:33	1	1	1	U	1	U	ug/L
Lead	02/29/2016 13:15	03/09/2016 15:33	1	1	2.4		2.4		ug/L
Manganese	02/29/2016 13:15	03/09/2016 15:33	1	1	3.4		3.4		ug/L
Nickel	02/29/2016 13:15	03/09/2016 15:33	1	1	1	U	1	U	ug/L
Zinc	02/29/2016 13:15	03/09/2016 15:33	1	5	5	U	5	U	ug/L

DF = Dilution Factor RL = Reporting Limit

* = Modified by Validation

U = Non-Detect J = Estimated R = Rejected

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Form 1 Data Sheet - Metals

SEMS

DELATTE METALS

SDG: 2033118

COC Sample ID: **SOUTH WELL** Sample Matrix : **Water**

Location ID: **NA**

Lab Sample ID: **2033118005** Lab Code: **PACE**

Sample Type: **Site Sample**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016 13:38	03/09/2016 14:58	1	1	1	U	1	U	ug/L
Cadmium	02/29/2016 13:38	03/09/2016 14:58	1	1	1	U	1	U	ug/L
Lead	02/29/2016 13:38	03/09/2016 14:58	1	1	1	U	1	U	ug/L
Manganese	02/29/2016 13:38	03/09/2016 14:58	1	1	4.2		4.2		ug/L
Nickel	02/29/2016 13:38	03/09/2016 14:58	1	1	1	U	1	U	ug/L
Zinc	02/29/2016 13:38	03/09/2016 14:58	1	5	13.7		13.7		ug/L

DF = Dilution Factor RL = Reporting Limit

* = Modified by Validation

U = Non-Detect J = Estimated R = Rejected

eDATApro

Form 1 Data Sheet - Metals

SEMS

DELATTE METALS

SDG: 2033118

COC Sample ID: **DUPLICATE** Sample Matrix: **Water**

Location ID: **NORTH WELL**

Lab Sample ID: **2033118006** Lab Code: **PACE**

Sample Type: **Field Duplicate**

Parameter Name	Collection Date	Analysis Date	DF	RL	Lab Result	Lab Qualifier	Validated Result	Validated Qualifier	Units
Method: EPA 6020									
Arsenic	02/29/2016	03/09/2016 15:37	1	1	1	U	1	U	ug/L
Cadmium	02/29/2016	03/09/2016 15:37	1	1	1	U	1	U	ug/L
Lead	02/29/2016	03/09/2016 15:37	1	1	1.9		1.9		ug/L
Manganese	02/29/2016	03/09/2016 15:37	1	1	3.9		3.9		ug/L
Nickel	02/29/2016	03/09/2016 15:37	1	1	1	U	1	U	ug/L
Zinc	02/29/2016	03/09/2016 15:37	1	5	5	U	5	U	ug/L

DF = Dilution Factor RL = Reporting Limit

* = Modified by Validation

U = Non-Detect J = Estimated R = Rejected

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Appendix II
Chain of Custody

Pace

WO# : 2033118

2033118

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1487966

Section A Required Client Info...

Required Project Information:

Section C Invoice Information:

Company: SEMS	Report To: Larry Braud	Attention: B. Sullivan
Address: 3801 N. Causeway #209	Copy To: bsullivan@semsinc.net	Company Name: SEMS
Metairie LA 70002		Address: 1628 S. Choctaw BR LA
Email To: lbraud@semsinc.net	Purchase Order No.:	Pace Quote Reference:
Phone: 342-2340 Fax:	Project Name: Delatte Metals	Pace Project Manager: Shackelford
Requested Due Date/TAT: Std.	Project Number: 209-0029	Pace Profile #: 6306

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: LA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Metals *	MS/MSD	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	WW-04	WW	G	2/29	1415				1			X						Y	X			
2	WW-09				1438				1			X						Y	X			
3	Reagan Well				1407				1			X						Y	X			
4	North Well				1315				1			X						Y	X			
5	South Well				1338				3			X						Y	X	X		
6	Duplicate	↓	↓	↓	—				1			X						Y	X			
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* Report only As, Cd, Pb, Mn, and Zn	L Braud / SEMS	2-29-16	1542	J Miller / Pace	2-29-16	1542	2.1	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: L. Braud

SIGNATURE of SAMPLER: L Braud

DATE Signed (MM/DD/YY): 2/29/16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

ATTACHMENT E

LEVEL IV DATA PACKAGE

(CD ATTACHED)